CULINARY SPECIALIST (CS)

Training Manual

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Center for Service Support (401) 841-1057 or DSN: 841-1057

Although the words "he," "him," and "his" are used sparingly in this course to enhance communication, they are not intended to be gender driven or to affront or discriminate against anyone.

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Sailor's Creed

"I am a United States Sailor.

I will support and defend the Constitution of the United States of America and I will obey the orders of those appointed over me.

I represent the fighting spirit of the Navy and those who have gone before me to defend freedom and democracy around the world.

I proudly serve my country's Navy combat team with honor, courage and commitment.

I am committed to excellence and the fair treatment of all."

THE UNITED STATES NAVY

GUARDIAN OF OUR COUNTRY

The United States Navy is responsible for maintaining control of the sea and is a ready force on watch at home and overseas, capable of strong action to preserve the peace or of instant offensive action to win in war.

It is upon the maintenance of this control that our country's glorious future depends; the United States Navy exists to make it so.

WE SERVE WITH HONOR, COURAGE, AND COMMITMENT

Tradition, valor, and victory are the Navy's heritage from the past. To these may be added dedication, discipline, and vigilance as the watchwords of the present and the future.

At home or on distant stations, we serve with pride, confident in the respect of our country, our shipmates, and our families.

Our responsibilities sober us; our adversities strengthen us.

Service to God and Country is our special privilege. We serve with honor.

THE FUTURE OF THE NAVY

The Navy will always employ new weapons, new techniques, and greater power to protect and defend the United States on the sea, under the sea, and in the air.

Now and in the future, control of the sea gives the United States her greatest advantage for the maintenance of peace and for victory in war.

Mobility, surprise, dispersal, and offensive power are the keynotes of the new Navy. The roots of the Navy lie in a strong belief in the future, in continued dedication to our tasks, and in reflection on our heritage from the past.

Never have our opportunities and our responsibilities been greater.

Center for Service Support

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CSCM (SW/AW) Carol Anderson	NFMT Norfolk
CSCM (SW/AW) Michael Carter	NFMT Norfolk
CSCS (SW) Catrina Cain	NFMT Norfolk
CSCS (SS/SW) John Harrison	NFMT Mayport
CSCS (SW/AW) Nathan Jiggetts	NFMT Norfolk
CSCS (SW/AW) Nathaniel Jiggetts	ATG Norfolk
CSCS (SW/AW) Edgar Moreno	ATG San Diego
CSCS (SW) John Palermo	NFMT Mayport
CSCS (SW/AW) Marco Phifer	ATG Norfolk
CSCS (SW) Karl Shannon	NFMT Pearl Harbor
CSCS (SW) Doug Shultz	NFMT San Diego
CS1 (SW) Bryant Hill	Naval Base Point Loma
CS1 Christal Dobbs	USS RONALD REAGAN (CVN-76)
CS1 (SW) Edwin Javier	CSS San Diego
CS2 (SW/AW) Idalia Alaniz	USS RONALD REAGEN (CVN-76)
CS2 (SW/AW) Allan Sazon	Naval Base San Diego
CS2 (SS) Joseph White	USS TOPEKA (SSN-754)

RTM Development Group personnel who provided direct support for this RTM:

Mr. Richard Price	NRTC Model Manager/Conference Facilitator
Ms. Jackie Cayer	Editor
Mr. Richard Rangel	Editor
CSCS (SW) Scott Spencer	CSS Training Manager
CSC (SS) Ken Hollar	CSS Training Manager

The Model Manager for this RTM is Center for Service Support Newport, RI DSN 841-1057

PREFACE

About this course:

This is a self-study course. By studying this course, you can improve your professional/military knowledge, as well as prepare for the Navy-wide advancement-in-rate examination. It contains subject matter about day-to-day occupational knowledge and skill requirements and includes text, tables, and illustrations to help you understand the information. An additional important feature of this course is its reference to useful information in other publications. The well-prepared Sailor will take the time to look up the additional information.

By enrolling in this self-study course, you have demonstrated a desire to improve yourself and the Navy. Remember, however, this self-study course is only one part of the Navy training program. Practical experience, schools, selected reading, and your desire to succeed are also necessary to successfully round out a fully meaningful training program.

COURSE OVERVIEW: In completing this non-resident training course, you will demonstrate knowledge of the subject matter by correctly answering questions on the following subjects: The military postal service, designations and terminations, mail packaging and acceptance, domestic mail, international mail, registered mail, finance, handling and transportation, claims and inquiries, directory service, equipment and supplies, official mail, audits, reports and inspections.

THE COURSE: This self-study course is organized into subject matter areas, each containing learning objectives to help you determine what you should learn along with text and illustrations to help you understand the information. The subject matter reflects day-to-day requirements and experiences of personnel in the rating or skill area. Also, it reflects guidance provided by Enlisted Community Managers (ECMs) and other senior personnel, technical references, instruction, etc., and either the occupational or Naval standards, which are listed in *Manual of Navy Enlisted Manpower and Personnel Classifications and Occupations Standards*, NAVPERS 18068.

THE ASSIGNMENTS: The assignments that appear in this course are designed to help you understand the material in the text.

COURSE OBJECTIVE

The objective of this course is to provide Culinary Specialists (CS) with occupational information.

INSTRUCTIONS FOR TAKING THE COURSE ASSIGNMENTS

The links and material that you are to study are included in each chapter. Study the material and links carefully before attempting to answer the questions. Pay close attention to tables and illustrations, and read the information in the links.

SELECTING YOUR ANSWERS

Read each question carefully, and then select the BEST answer. You may refer freely to the text. The answers must be the result of your own work and decisions. You are prohibited from referring to or copying the answers of others and from giving answers to anyone else taking the course.

SUBMITTING YOUR ASSIGNMENTS

To have your assignments graded, you must be enrolled in the course with the Non-Resident Training Course Administration Branch. Following enrollment, there are two ways of having your assignments graded:

- Use the Internet to submit your assignments as you complete them.
- Send all the assignments at one time by mail to CPPD, NRTC.

Grading on the Internet: Advantages to Internet grading are as follows:

- You may submit your answers as soon as you complete an assignment.
- You get your results faster.
- In addition to receiving grade results for each assignment, you will receive course completion confirmation once you have completed all the assignments.

To submit your assignment answers via the Internet, go to the following site:

https://www.courses.netc.navy.mil

Grading by Mail: When you submit answer sheets by mail, send all of your assignments at one time. Do NOT submit individual answer sheets for grading. Mail all of your assignments in an envelope, which you either provide yourself or obtain from your nearest Educational Services Officer (ESO). Submit answer sheets to the following:

Commanding Officer
Center for Personal and Professional Development
ATTN: VOLED Det. (NRTC)
6490 Saufley Field Road
Pensacola, FL 32509

Answer Sheets: Each course includes an answer sheet for your assignments. If you are going to mail in your answer sheets, please make copies of the included answer sheet. Explanations for completing the answer sheets are on the answer sheet.

Follow the instructions for marking your answer on the answer sheet. Be sure that blocks 1, 2, and 3 are filled in correctly. This information is necessary for your course to be properly processed and for you to receive credit for your work.

COMPLETION TIME

Courses must be completed within 12 months from the date of enrollment. This includes time required to resubmit failed assignments.

PASS/FAIL ASSIGNMENT PROCEDURES

You will be given the opportunity to resubmit failed assignments. You may resubmit failed assignments only once. Internet students will receive notification when they have failed an assignment; they may then resubmit failed assignments on the Web site. Internet students may view and print results for failed assignments from the Web site. Students who submit by mail will receive a failing result letter and a new answer sheet for resubmission of each failed assignment.

COMPLETION CONFIRMATION

After successfully completing this course, you can download a copy of your letter of completion on the NRTC Web site:

https://www.courses.netc.navy.mil

STUDENT FEEDBACK QUESTIONS

We value your suggestions, questions, and criticisms on our courses. If you would like to communicate with us regarding this course, we encourage you, if possible, to use e-mail. If you write or fax, please use a copy of the Student Comment form that follows this page.

For subject matter questions:

Contact the Center for Service Support, Newport, RI

Email: NWPT_CSS_RTM@navy.mil

Phone: 401-841-1057 or DSN 841-1057

For enrollment, shipping, grading, or completion letter questions:

Email: NRTC@navy.mil

Phone: Toll Free 1-877-264-8583

Comm: 850-452-1511

DSN: 922-1511

FAX: 850-452-1370

(Do NOT fax answer sheets.)

ADDRESS:

Commanding Officer
Center for Personal and Professional Development
ATTN: VOLED Det. (NRTC)
6490 Saufley Field Road
Pensacola, FL 32509

Privacy Act Statement: Under authority of Title 5, USC 301, information regarding your military status is requested in processing your comments and in preparing a reply. This information will not be divulged without written authorization to anyone other than those within DOD for official use in determining performance.

Students' Comments

Course Title: _____

NAVEDTRA: _____ Date: _____

We need some information about you:

Rate/Rank and Name: _____

Command/Unit: _____

Street Address: _____

City: _____

State/FPO: _____

Zip: _____

Email Address: _____ DSN: _____

Your comments, suggestions, etc: _____

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CHAPTER 1

FOOD SERVICE ADMINISTRATION

***Learning Objectives:**: Upon completion of this chapter, you should be able to do the following:*

— Identify the function and responsibilities within the chain of command and support activities as required to understand the task or function of Food Service Administration.

— Identify the function and the Stockage Objectives.

— Discuss Low Limit.

— Discuss High Limit.

— Discuss the importance of having a well-arranged serving line.

— Define the meaning "Merchandizing."

— Discuss the importance of having an adequate number of the proper serving utensils.

— Discuss the importance of have good customer service skills.

INTRODUCTION

As a Culinary Specialist (CS) you will have direct working relationships with the Supply Officer, Food Service Officer (FSO), other supervisors and subordinates. Your success is largely determined by your ability to develop strong working relationships with these people. Just as you should support the workers in your group, so too you should turn to your Supply Officer, FSO and other supervisors in your division for their support in making your job more effective. You will earn the support of these personnel through cooperation and willingness to assist others, through earnest efforts to do your job well and through constant efforts to improve yourself, your organization and the ship or station to which you are attached.

This chapter discusses the use of your administrative skills in procuring food items, using food-service cost control procedures and maintaining accountability.

PROCUREMENT of FOOD ITEMS

Although the Supply Officer or Food Service Officer (FSO) is responsible for procuring of food items, in some instances, you must perform these duties. In either case, your experience, your knowledge and your planned menus will be extremely valuable when preparing requisitions.

A thorough knowledge of the mechanics of procurement is essential. Each phase will be discussed and explained in this chapter. However, before any thought is given to the actual preparation of requisitions and purchase orders, you should determine your needs. This cannot be done on the spur of the moment. You should know what stocks are on hand, how much can be loaded in each storage space and when to order.

Whatever you procure must be receipted for, inspected and stored. Prior planning and preparation will eliminate confusion, disorganized storage spaces and the resultant survey of spoiled food items.

This portion of the chapter is intended to help you find the answers to such questions as the following:

- What items should I consider to develop a balanced load
- How do I establish the stockage objective and determine the provision requirements for my ship or station
- What catalog should I use when purchasing or requisitioning food items
- When requisitioning from other Navy activities, what paper work do I submit
- What should I do with unsatisfactory food items
- What are my duties in connection with underway replenishment
- Where in the freeze box should pork, veal, lamb, poultry and fish be stored

The fleet cannot stay at sea without food. You are responsible for ensuring maximum endurance capability of your ship.

During the past few years, several crises have arisen that required ships to report to their stations on extremely short notice. At other crucial periods in the future, similar action may be required.

DETERMINING PROVISIONS REQUIREMENTS

General Regulations and rules apply to all purchases of food items, Local Purchases, Transfers from Ship's Stores and Underway Replenishment.

BALANCED LOAD

You should aid the FSO in developing a balanced load by using the menu as a daily tool. A well-developed cycle menu, in conjunction with a frequency chart of major menu items, will aid in determining balanced load requirements. When deployed, you will want to keep a close check on inventories to make the best use of your remaining stocks.

Remember that you cannot establish your food item endurance loads based on formulas and graphs alone. Apply common sense and good judgment to the problem.

If you have usage data that was generated during extended un-replenished operations, you have ideal information to use in planning your endurance load. However, if the only available data represents usage during replenishment operations or when normal liberty was granted, the data does not reflect requirements for true endurance conditions. However, such data can be helpful in deciding what foods to include in your endurance load list. When local usage data is applicable and usage data from a ship of the same class is not available for use in planning load lists, refer to the Subsistence Endurance Base (SEB) in the NAVSUP P-486. This guide is also a helpful tool for CSs who have had limited experience in planning load lists. The Navy Food Service, NAVSUP P-476 (a quarterly foodservice publication), also includes articles on endurance loading.

STOCKAGE OBJECTIVES

The stockage objective for food items should be the total of the operating level plus the safety level in terms of days of supply (Figure 1-1). The operating level of supply is the amount of material required to sustain operating requirements between replenishment periods. The safety level of supply is generally the quantity required to be on hand, in addition to the operating level, to permit continued operations if a minor interruption of normal replenishment or unpredictable fluctuations in demand oc-

cur. Stockage objectives for ships are issued by the appropriate type commander. Stockage objectives for food items for activities in Alaska, Hawaii and overseas are issued by the fleet commanders through their logistics agents.

Continental United States (CONUS) activities maintaining inventories of food items in end-use accounts, who requisition and stock food items under the appropriation Operation and Maintenance, Navy (O&MN) Subsistence Account, as authorized by the Naval Supply Center (NAVSUP), should use the stockage levels recommended in the NAVSUP P-486.

A low limit and a high limit should be established for each item of stock at the beginning of each quarter.

Operating level	The quantity of material needed to sustain operations between replenishment	Average endurance level is the quantity of material normally required to be on hand to sustain operations for a stated period without augmentation. It is also the safety level plus one-half of the operating level.
+ (plus)		
Safety level	The quantity needed for continuous operations in the event normal replenishment is interrupted or to meet unpredictable fluctuations in demand	
= (equals)		
Stockage objective	The maximum quantity of material to be maintained on hand to sustain current operations	Low limit (reorder point) is the stock position which signals the need to initiate replenishment action. It includes the sum of stocks represented by the safety level and the order and shipping time.
+		
Order and shipping time	Represents the quantity of material that will be consumed during the interval between submission of requisition and receipt of material (procurement lead time)	
=		
Requisitioning objective	The maximum quantity of material to be maintained on hand and on order to meet current operational requirements	High limit includes the sum of stocks represented by the operating level, the safety level and the order and shipping time.

Figure 1-1, Stockage objective for food items.

Low Limit

The low limit is the stock position that signals the need to begin replenishment action. There will be no low limit for perishable subsistence items except when that item has a storage life greater than the high limit number of days' endurance established by the fleet or type commander.

High Limit

The high limit is the maximum quantity of subsistence to be maintained on hand to sustain current operations. The high limit for perishable subsistence items will not exceed the storage life of that item times the total quantity from the previous accounting period less surveys and transfers divided by the last three accounting periods.

DETERMINING PROVISIONS REQUIREMENTS

You are always required to have enough food items on board to provide for a specific period. This means enough food to provide a balanced diet. Your fleet commander specifies this period, in days, and this period varies among fleets and among type commanders. You are responsible for carrying out the directives you receive on maintaining specific quantities of food items.

Extended Endurance

Five steps should be considered when you are determining your requirements. These steps are proper for general messes:

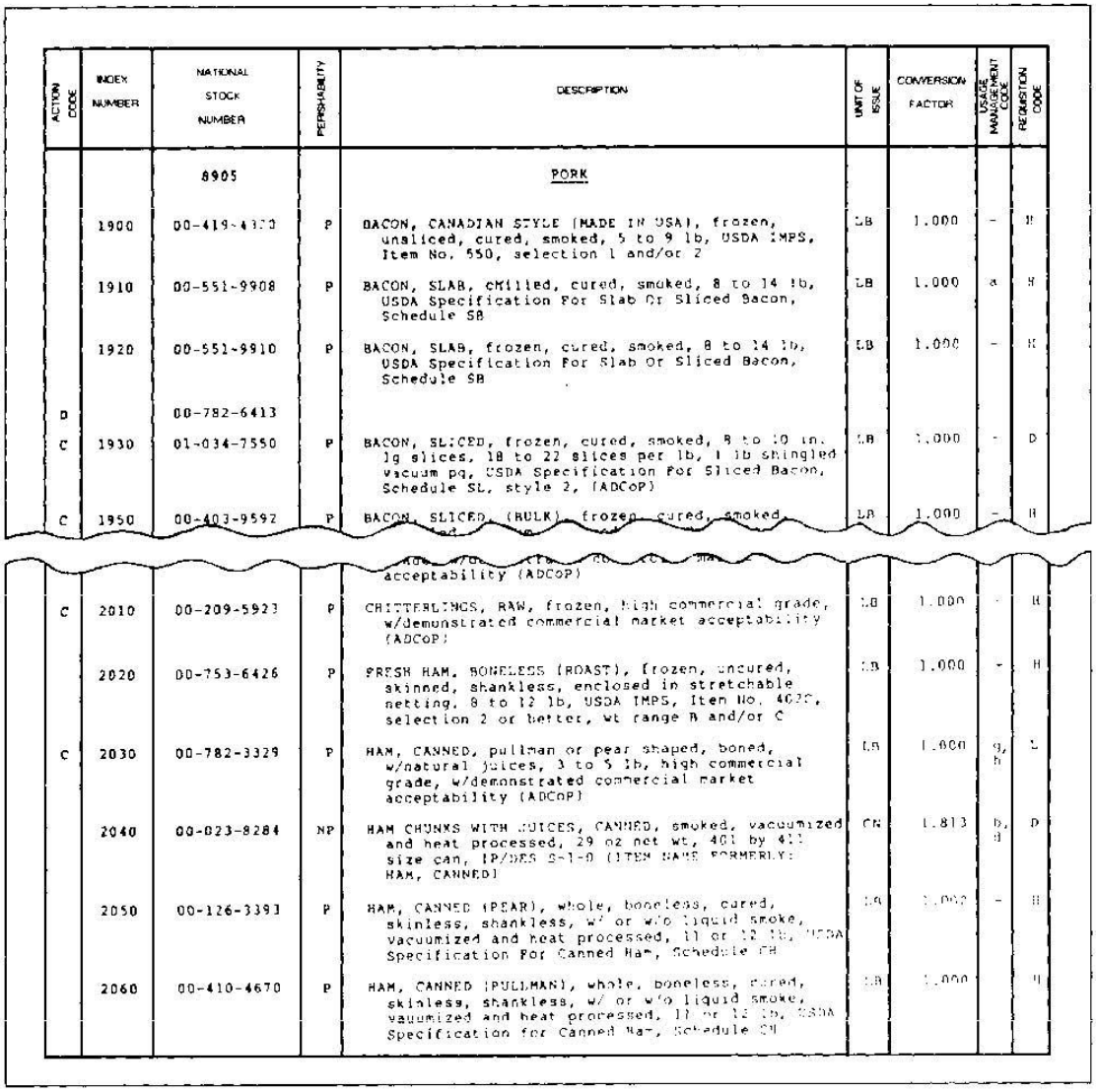
- Step one of your loading out is determining your present stock level
- Step two, you determine the capacity of the total storage area and then divide that figure into dry, chill and freeze storage areas
- Step three should be the planning of your menus
- Step four, you should determine the quantities of food items that are necessary for a specific period, such as the time between replenishment and your next scheduled replenishment
- Step five you should be able to identify the available supply source(s).

For further guidance, refer to NAVSUP P-486.

Procurement Publications

Certain publications are required when you requisition or purchase food items. The Federal Supply Catalog (FSC), Group 89, Subsistence, is used to requisition food items. Refer to contract bulletins when you purchase food items under contract. Defense Logistics Agency (DLA) contract bulletins also may list resale food items. These items are not authorized for General Mess (GM) use.

The FSC furnishes the identification and management data for items required by the Army, Air Force, Marine Corps and Navy. It provides the official source of identification for Department of Defense (DOD) supply and procurement activities. The stock list (Figure 1-2) is published annually and updated by the publication of cumulative change bulletins.



ACTION CODE	INDEX NUMBER	NATIONAL STOCK NUMBER	PERISHABILITY	DESCRIPTION	UNIT OF ISSUE	CONVERSION FACTOR	USAGE MANAGEMENT CODE	REQUISITION CODE
		8905		PORK				
	1900	00-419-4320	P	BACON, CANADIAN STYLE (MADE IN USA), frozen, unsliced, cured, smoked, 5 to 9 lb, USDA IMPS, Item No. 550, selection 1 and/or 2	LB	1.000	-	H
	1910	00-551-9908	P	BACON, SLAB, chilled, cured, smoked, 8 to 14 lb, USDA Specification For Slab Or Sliced Bacon, Schedule SB	LB	1.000	a	H
	1920	00-551-9910	P	BACON, SLAB, frozen, cured, smoked, 8 to 14 lb, USDA Specification For Slab Or Sliced Bacon, Schedule SB	LB	1.000	-	H
D		00-782-6413						
C	1930	01-034-7550	P	BACON, SLICED, frozen, cured, smoked, 8 to 10 in. lg slices, 18 to 22 slices per lb, 1 lb shingled vacuum pq, USDA Specification For Sliced Bacon, Schedule SL, style 2, (ADCoP)	LB	1.000	-	D
C	1950	00-403-9592	P	BACON, SLICED, (BULK), frozen, cured, smoked, [illegible] acceptability (ADCoP)	LB	1.000	-	H
C	2010	00-209-5923	P	CHITTERLINGS, RAW, frozen, high commercial grade, w/demonstrated commercial market acceptability (ADCoP)	LB	1.000	-	H
	2020	00-753-6426	P	FRESH HAM, BONELESS (ROAST), frozen, uncured, skinned, shankless, enclosed in stretchable netting, 8 to 12 lb, USDA IMPS, Item No. 402C, selection 2 or better, wt range B and/or C	LB	1.000	-	H
C	2030	00-782-3329	P	HAM, CANNED, pullman or pear shaped, boned, w/natural juices, 3 to 5 lb, high commercial grade, w/demonstrated commercial market acceptability (ADCoP)	LB	1.000	g, h	L
	2040	00-823-8284	NP	HAM CHUNKS WITH JUICES, CANNED, smoked, vacuumized and heat processed, 29 oz net wt, 401 by 411 size can, IP/DES S-1-0 (ITEM NAME FORMERLY: HAM, CANNED)	CN	1.813	b, g	D
	2050	00-126-3393	P	HAM, CANNED (PEAR), whole, boneless, cured, skinless, shankless, w/ or w/o liquid smoke, vacuumized and heat processed, 11 or 12 lb, USDA Specification For Canned Ham, Schedule CH	LB	1.000	-	H
	2060	00-410-4670	P	HAM, CANNED (PULLMAN), whole, boneless, cured, skinless, shankless, w/ or w/o liquid smoke, vacuumized and heat processed, 11 or 12 lb, USDA Specification for Canned Ham, Schedule CH	LB	1.000		H

Figure 1-2, Federal Supply Catalog stock list.

Group 89 (except class 8965) contains items for which activities in the DOD have recorded requirements. Part I, Alphabetical List, is a list of all food items arranged in alphabetical sequence by subgroups within each of the following classes:

8905 Meat, Poultry and Fish

8910 Dairy Foods and Eggs

8915 Fruits and Vegetables

8920 Bakery and Cereal Products

8925 Sugar, Confectionery and Nuts

8930 Jams, Jellies and Preserves

8935 Soups and Bouillon

8940 Special Dietary Foods and Food Specialty Preparations

8945 Food Oils and Fats

8950 Condiments and Related Products

8955 Coffee, Tea and Cocoa

8960 Beverages, Nonalcoholic

8970 Composite Food Packages

Part I, contains a list of all food items arranged in alphabetical sequence by subgroups within each FSC class. It also contains descriptive and related management data.

Part II, Ration Components, contains those ration components that are authorized for requisitioning by military services.

Part III, Case Lot Data (Figure 1-3) is arranged in numerical sequence by national stock number (NSN). It provides weight and dimensional data applicable to unit package for items in Part I for which this data is available.

Fleet Instructions

Fleet commanders furnish instructions for establishing and maintaining a balanced load through the Atlantic Fleet Requisitioning Guide, CINLANTFLTINST 4210.1 (series) and the Pacific Requisitioning Guide, CINPACFLTINST 4235.1 (series).

Afloat requisitioners, both Atlantic Fleet and Pacific Fleet, use the single Consolidated Afloat Requisitioning Guide Overseas (CARGO), NAVSUP P-4998, titled “Subsistence Requisitioning Tables.” These tables contain information on stock management of food items and requisitioning procedures. The available seasonal fresh produce listing differs for the Atlantic and the Pacific Fleets. By direction of the Naval Supply Systems Command, the CARGO is issued annually by the Fleet Material Support Office (FMSO).

The Subsistence Requisitioning Tables listed in the CARGO show quantities of food items for nine alternative balanced loads identified by column headings A through I. Column headings also provide approximate numbers of persons supported by each column. Support ranges from a 30-day level for approximately 83 persons (column A) to a 30-day level for 3,000 persons (column I).

When using the CARGO, determine your requirements for all items listed in the applicable tables by doing the following:

- Check your storerooms to see what stores you have and what space you have
- Check your records to see what you have used

Procurement Restrictions

Food items authorized for Navy use are listed in the FSC. Requests for exceptions or deviations from usage restrictions should be submitted via the chain of command to Type Commander, (TYCOM) to Naval Supply Center (NAVSUP) with complete justification. Refer to the NAVSUP P-486 for further information about procurement restrictions.

General Regulations

The following rules apply to all purchases of food items:

- Food items authorized for use by your ship or station may be purchased under the Prime Vendor (PV) annual contracts if the items cannot be furnished from a normal source of supply

- The Department of Agriculture controls the entry of certain foreign-grown fruits, vegetables and meats into the United States through absolute quarantine. Therefore, in the procurement of meats, fruits and vegetables in foreign waters, only such quantities should be taken on board as will be consumed completely before arrival in home waters. Inform the senior medical department representative when any purchase is contemplated
- Order perishable food items well in advance of the time set for sailing. You may need the additional time to replace items that are not according to specification

Local Purchases

When authorized food items cannot be obtained through regularly established supply channels subsistence support may be requested from the sources specified below. Usually food items will be requisitioned from these sources for an interim period only and in the absence of regular supply sources.

Local Purchase CONUS: Local purchases will not be authorized unless:

- There is an immediate and urgent requirement, mission essential for authorized supplies or services
- The supplies or services are not available at the local supply activity
- Time is a factor and scheduled operations will not permit procurement through shore based purchasing activities. See DSCP Ships Ordering Guide for additional information at www.dscp.dla.mil/subs/pv/shipsfog/
- Receptions funded privately or through Official Representation Funding (ORF)
- Purchased from approved sources; All food products will be purchased only from
- approved sources of supply as stated in NAVSUP Instruction 4355.4 (series)

Fleet fast pay is a procedure that allows fast payment under limited conditions to a contractor before the government's verification that supplies have been received and accepted. Fast payment procedures are used for food supplies only. The procedure provides for payment for food supplies based on the contractor's submission of an invoice that constitutes a representation that: The supplies have been delivered to a point of first receipt by the government; and the contractor agrees to replace, repair, or correct supplies not received at destination, damaged in transit, or not conforming to purchase agreements.

The ship will not receive a dealer's invoice nor should it present any documents showing receipt and acceptance to the paying office or to the supporting supply activity ashore before payment for material ordered under the fast payment clause.

The consignee's (GM) copy of the purchase order will contain the following instruction:

"Consignee's notification to purchasing activity of non-receipt, damage, or conformance." The consignee shall tell the purchasing activity promptly after specified date of delivery in the purchase order of supplies not received, Dealers' Invoices damaged in transit, or not conforming to specifications of the purchase order. Under extenuating circumstances, such notification should be made no later than 30 days after the specified date of delivery.

ORDER FOR SUPPLIES OR SERVICES/REQUEST FOR QUOTATION
(DD FORM 1155)
DEFINITE DELIVERY CONTRACT PURCHASE ORDER

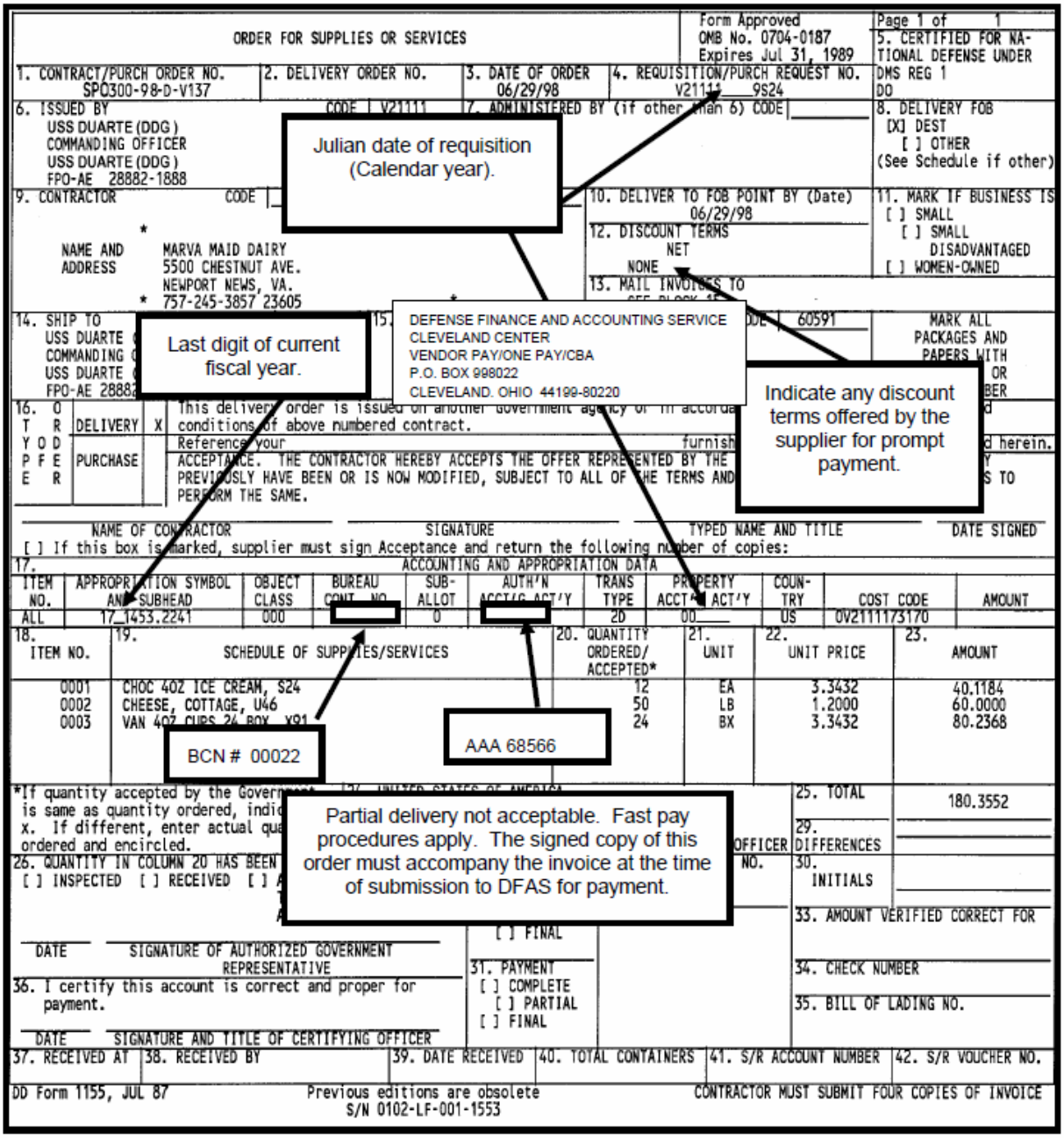

ORDER FOR SUPPLIES OR SERVICES
Form Approved OMB No. 0704-0187 Expires Jul 31, 1989
Page 1 of 1
1. CONTRACT/PURCH ORDER NO. SPO300-98-D-V137
2. DELIVERY ORDER NO.
3. DATE OF ORDER 06/29/98
4. REQUISITION/PURCH REQUEST NO. V21111 9824
5. CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REG 1 DO
6. ISSUED BY USS DUARTE (DDG) COMMANDING OFFICER USS DUARTE (DDG) FPO-AE 28882-1888
7. ADMINISTERED BY (if other than 6) CODE
8. DELIVERY FOB [X] DEST [ ] OTHER (See Schedule if other)
9. CONTRACTOR CODE
NAME AND ADDRESS MARVA MAID DAIRY 5500 CHESTNUT AVE. NEWPORT NEWS, VA. 757-245-3857 23605
10. DELIVER TO FOB POINT BY (Date) 06/29/98
11. MARK IF BUSINESS IS [ ] SMALL [ ] SMALL DISADVANTAGED [ ] WOMEN-OWNED
12. DISCOUNT TERMS NET NONE
13. MAIL INVOICES TO
14. SHIP TO USS DUARTE COMMANDING USS DUARTE FPO-AE 28882
15. CODE 60591
MARK ALL PACKAGES AND PAPERS WITH OR BER
16. DELIVERY X This delivery order is issued on another government agency or in accorde conditions of above numbered contract.
PURCHASE Reference your furnish d herein. ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED, SUBJECT TO ALL OF THE TERMS AND PERFORM THE SAME. S TO
NAME OF CONTRACTOR SIGNATURE TYPED NAME AND TITLE DATE SIGNED
[ ] If this box is marked, supplier must sign Acceptance and return the following number of copies:
17. ACCOUNTING AND APPROPRIATION DATA
ITEM NO. | APPROPRIATION SYMBOL AND SUBHEAD | OBJECT CLASS | BUREAU CONT. NO. | SUB-ALLOT | AUTH'N ACCT'G ACT'Y | TRANS TYPE | PROPERTY ACCT'G ACT'Y | COUNTRY | COST CODE | AMOUNT
ALL | 17_1453.2241 | 000 | | 0 | | 20 | 00 | US | 0V2111173170 |
18. ITEM NO. | 19. SCHEDULE OF SUPPLIES/SERVICES | 20. QUANTITY ORDERED/ ACCEPTED* | 21. UNIT | 22. UNIT PRICE | 23. AMOUNT
0001 CHOC 4OZ ICE CREAM, S24 12 EA 3.3432 40.1184
0002 CHEESE, COTTAGE, U46 50 LB 1.2000 60.0000
0003 VAN 4OZ CUPS 24 BOX X91 24 BX 3.3432 80.2368
*If quantity accepted by the Government is same as quantity ordered, indicate x. If different, enter actual quantity ordered and encircled.
25. TOTAL 180.3552
29. DIFFERENCES
26. QUANTITY IN COLUMN 20 HAS BEEN [ ] INSPECTED [ ] RECEIVED [ ]
30. INITIALS
[ ] FINAL
33. AMOUNT VERIFIED CORRECT FOR
DATE SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE
31. PAYMENT [ ] COMPLETE [ ] PARTIAL [ ] FINAL
34. CHECK NUMBER
36. I certify this account is correct and proper for payment.
35. BILL OF LADING NO.
DATE SIGNATURE AND TITLE OF CERTIFYING OFFICER
37. RECEIVED AT 38. RECEIVED BY 39. DATE RECEIVED 40. TOTAL CONTAINERS 41. S/R ACCOUNT NUMBER 42. S/R VOUCHER NO.
DD Form 1155, JUL 87 Previous editions are obsolete S/N 0102-LF-001-1553 CONTRACTOR MUST SUBMIT FOUR COPIES OF INVOICE
Julian date of requisition (Calendar year).
Last digit of current fiscal year.
DEFENSE FINANCE AND ACCOUNTING SERVICE CLEVELAND CENTER VENDOR PAY/ONE PAY/CBA P.O. BOX 998022 CLEVELAND, OHIO 44199-80220
Indicate any discount terms offered by the supplier for prompt payment.
BCN # 00022
AAA 68566
Partial delivery not acceptable. Fast pay procedures apply. The signed copy of this order must accompany the invoice at the time of submission to DFAS for payment.

Figure 1-3, Order for Supplies and Services/Request for Quotations, DD Form 1155, used for an indefinite delivery.

The paying activity may require periodic reports of receipts and performance of deliveries under fast pay.

Transfers from Ship's Stores

Sales from Ship's Store: Ships Store transactions will be limited and monitored not to exceed $2,500 ($5,000 for AS/CVN/LCC/LHA/LHD/LSD/LPD) on a monthly basis. Bottled water, canned soda and individual size food servings may be procured from the Ship's Store to support special meals, steel beach picnics and the command box lunch program. Canned sodas are authorized for use only where carbonated beverage dispensers are not available. All sales between the ship's store and the GM must be documented on the NAVSUP 1149 (Figure 1-5.) These transactions must be recorded as Receipts with Charge. Approval from BUPERS through TYCOM must be obtained prior to transfer from ship's store. Refer to NAVSUP 486 for guidance on ships store items.

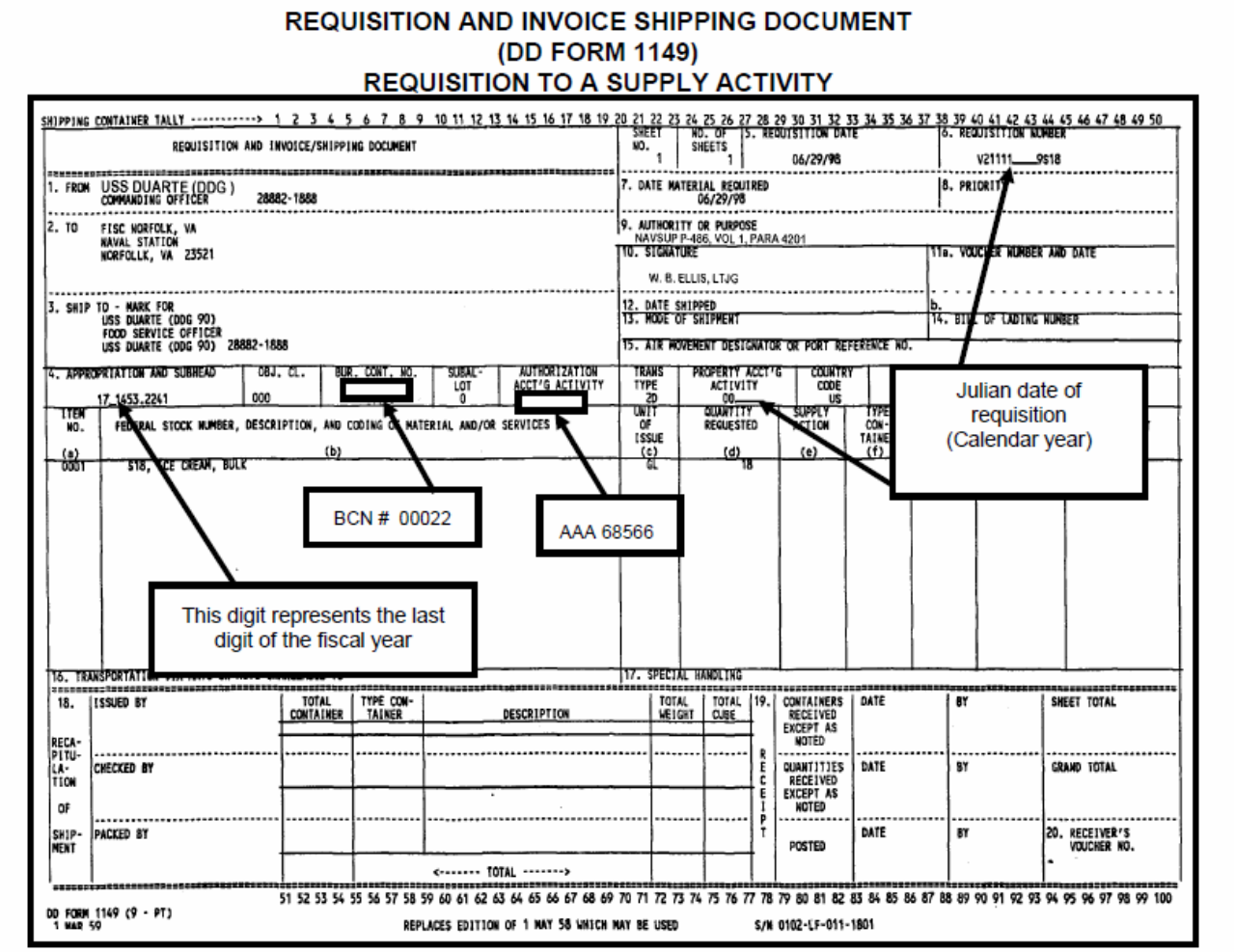

REQUISITION AND INVOICE SHIPPING DOCUMENT
(DD FORM 1149)
REQUISITION TO A SUPPLY ACTIVITY
Julian date of requisition (Calendar year)
BCN # 00022
AAA 68566
This digit represents the last digit of the fiscal year

Figure 1-4, Requisition and Invoice Shipping Document, DD Form 1149

Underway Replenishment

Underway replenishment is a major task. However, this task may be simplified somewhat by careful planning and supervision on your part. The Underway Replenishment Bill is a part of your ship's Standard Organization and Regulations Manual. Compare this bill with others that you have used. If the bill can be improved, discuss your recommended changes with your immediate supervisor.

Listed next are some major points that you should consider when planning underway replenishment:

1. Be sure you are ready for replenishment when the time comes by accomplishing the following:
    a. Know the replenishment stations.
    b. Determine the number of cases that will come aboard, how many people will be required as checkers and how many people will be needed in the working party.
    c. Ensure that all storerooms are ready to receive the stores. This may require stock rotation and storeroom cleanup by the bulk storeroom personnel.
    d. Plan the traffic routes for the working party to take (Be sure to indicate a separate return from the storerooms to avoid congestion and confusion).
    e. The commanding officer (CO) and executive officer (XO) should be informed of the plans for replenishment
2. Make sure the working party are on station before replenishment begins.
3. Be sure the receipt inspectors have a system for checking all actual quantities of food items that come aboard.
4. Be sure the working party stays on the job until all food items are received aboard and stored below in the proper storerooms.
5. Be sure the checkers know where all the items are to be sent for storage. The checkers are usually CS's.
6. Take necessary precautions to see that items, such as fresh fruits, are not pilfered during the storing operation.

SPECIAL MEAL FEEDING

When specific conditions are met, there is a need for issuing special meals. These meals are issued for consumption aboard aircraft, small craft, or at a duty station away from the GM. For further guidance on special meal feeding, refer to NAVSUP P-486.

FOODSERVICE

Excellence in foodservice is essential to the health, morale and efficiency of all Navy personnel.

Good foodservice begins with you as the CS in the galley. The food must be properly prepared to look, taste and smell good. It should be brought to the serving line in appropriate containers and be served in attractive portions by properly trained, neat and clean foodservice personnel. The serving lines and all the serving operations should be arranged so foods are served at the proper temperature.

One of the most important traits that you, the CS, should have is a genuine feeling for people and a sincere service-oriented attitude. Good customer relations start with you. You should have a positive attitude toward your job and the customers you service. Attitudes have a major influence on people. A poor attitude will destroy all the hard work that has been put into the preparation and service of the meal. The key to good customer relations is to treat a customer the way you would like to be treated if you were a customer. The way you conduct yourself can make or break the meal regarding customer satisfaction.

Always remember that the CS rating is a people-oriented rating and customer service is of the utmost importance.

GENERAL MESS

GM food service begins in the galley with the preparation of the food. It is equally important that food be properly served. Wardroom styles of food presentation and serving techniques are discussed later in this chapter.

APPLICABLE EQUIPMENT

Steam Table Pans

To make sure an appetizing appearance is maintained, use shallow steam table inserts for serving both vegetables such as mashed potatoes, broccoli, cauliflower and meat items such as breaded veal cutlets or baked pork chops. If french-fried eggplant is stacked in a deep insert, the first few customers served will receive acceptable portions; everyone else will be served a soggy portion. If the eggplant is spread loosely in a shallow insert, you will know that all the customers served will receive an appetizing, palatable portion.

Standard-sized inserts can be used to serve items such as fried chicken, baked potatoes and macaroni. If foods require cooking in larger pans such as roasting pans or sheet pans, food items should be transferred to an awaiting insert on the serving line. Lasagna should be prepared in full-sized shallow steam table pans to prevent destroying the appearance and to increase the overall acceptability of the product. All food items should be covered to prevent shriveling or drying out. Many recipes are prepared in steam table pans thus eliminating the need for transferring the cooked food into steam table pans on the line.

Serving Utensils

Serving utensils and serving techniques go hand-in-hand. You cannot serve properly without the right utensils. Using the right serving tool for each dish has several advantages. It simplifies foodservice, exercises portion control, reduces food waste and maintains a more appetizing appearance of foods in pans on the serving line.

Portion sizes appropriate for each meal are the responsibility of the galley watch captain and servers. If the menu features two vegetables, preparation of full portions of both may result in plate waste. The portion size shown on the recipe card is a guide, not a rule. Appropriate portion sizes are shown on the food-preparation worksheet. You should periodically check excess tray waste. Portion sizes should be reduced if there is food waste. The patron who desires more will request larger portions. If the portions are hard to control, use ice-cream scoops.

Mashed potatoes, rice, bread dressings and baked beans are easy to serve with a scoop and portions are easier to control. When you are serving bulk ice cream, scoops and dippers should be rinsed between servings. Ice cream being dispensed by a scoop can be held 6°F and 10°F to facilitate serving. Bulk ice-cream products are not authorized for self-service.

For mashed potatoes or items of similar consistency, use a serving spoon or a scoop. Use a ladle or other shallow spoon to dip sauce or gravy from a shallow pan. Use a ladle to serve food from a deep well. Some foods, such as peas and cabbage, should be served with a perforated spoon, so the liquid drains back into the serving pan. Fried chicken, asparagus, broccoli and corn on the cob should be handled with tongs. If more than one serving line is being used, be sure the same item is being served in the same portion on each line.

Serving Utensils for Salads

An adequate number of the proper serving utensils for the salad bar will promote good sanitary practices and keep the salad bar in order during self-service. The most useful utensils and the food with which they can be used are as follows:

- Tongs for relishes and green salads—such as carrot sticks, celery, pickles, olives, lettuce and other salad greens
- Perforated spoons for salads mixed with thin dressings—such as coleslaw, fruit salad and cucumber and onion salad
- Basting spoons or scoops for compact foods and salad mixtures-such as potato, ham, fish, cottage cheese and macaroni salads
- Small ladles for thick and thin salad dressings.

Lighting

Foods appear more attractive under warm, natural light. Use incandescent or warm white fluorescent bulbs to give natural warm colors to the serving lines. If colored lights are used, be careful to use the correct color to achieve the desired effect. Red lights will give roast beef a warm, rare and hearty appearance. Test the color lights needed for your particular layout. Position the light correctly on the food so that the customer and the server are not blinded. Lights over food also should be adequately shielded.

SERVING LINE AREAS

The serving area, which includes the salad bar, steam table, bread and pastry counter, drink or beverage dispensers, should be cleaned after each meal. This area should be checked again before each meal to make sure it is clean and sanitary.

Salad Bar

Most salad bars are self-service and refrigerated. Salad bars range from the proportioned to the make your own type. A fully stocked, large variety salad bar is very popular with patrons of the GM. It often offers an alternative food source for weight-conscious patrons.

Arrangement of Salad items.—Overcrowding items on the salad bar detracts from the overall appearance, hinders easy self-service, slows down the service and generates confusion. Careful attention should be given to the arrangement of the salad items to prevent the customer from having to reach over one container of food to get to another. Particles of food are often dropped from one container to another, resulting in an unappetizing, unsatisfactory display of food.

Refrigeration of Salad Ingredients—For proper refrigeration of ingredients, place all salad bar items in pans or in trays on a bed of ice, or on a mechanically refrigerated salad bar unit. Proper drainage is essential if salad items are set in ice.

When the use of ice is not possible and the salad bar is not refrigerated, the bar should be large enough to accommodate shallow pans or trays of salad items. These trays of salad items should be kept under refrigeration until just before serving time. Because of the high room temperature of most messing areas, easily contaminated food should be placed on the salad bar in small quantities and replenished as needed. Examples of such foods are salad mixtures containing meat, fish, poultry, eggs, cooked salad dressing and mayonnaise. Commercially prepared salad dressings in individual portions and opened bottled salad dressing should be refrigerated.

Hot Food

Hot food should be placed on the steam table just before serving time. The quantities of food placed on the serving table should be small and should be replenished frequently during the serving period. It will be necessary to use progressive cooking techniques to meet these requirements.

If possible, arrange hot foods in the following order: soup, main entrée, sauce or gravy, potatoes or potato substitute and vegetables. For breakfast items such as pancakes, ham slices and eggs, the preferred method is progressive cooking.

Heat and juices are lost quickly from sliced meats. Roasts are more palatable when carved on the serving line as the customers come through because most of the natural juices and the heat will be retained.

Cold Food

Keeping cold foods, such as salads, properly chilled also requires planning and preparation. Salads contribute a great deal to the meal; they add variety, make meals more attractive and help balance the meal.

Desserts and Pastries

Desserts should be set in a tempting arrangement. Serve cleanly cut slices of pie and evenly sliced squares of cakes and cookie bars. Puddings and other similar desserts should be spooned neatly in bowls or dishes. Most desserts should be proportioned and replenished frequently to the serving line. If a special occasion cake is prepared, set the unsliced cake on the serving line. This will allow the decorated cake to be seen before it is sliced. Slice and proportion the cake on plates as the customers approach the dessert bar. One or two whole baked pies can be set on the serving line with sliced portions of the pie.

Highly perishable desserts such as cream puddings and pies, custards, fruit gelatin desserts, cream puffs and éclairs should be served chilled. Place them on refrigerated units or on trays over ice. Keep ice cream frozen. Whipped toppings should be served cold. Serve toppings from a small container and replenish frequently.

Locate dessert dishes for ice cream next to the ice-cream freezer. If soft ice cream is served, place paper cones or sugar cones near the machine. Sundae toppings should be located near the ice cream. If pie a la mode is the featured dessert, add scoops of ice cream as the dining patrons select the pie. Ice-cream pies should remain frozen. Place only a few slices of ice-cream pie on the serving line and replenish as required.

When pre-portioning desserts, you should provide a smaller portion with the standard size for the weight-conscious patrons.

Beverages

Cold drinks and juices should not be dispensed by ladle from an insert; milk dispensers or other appropriate dispensers should be used. Do not serve juices from their original container unless the cans are the individual size. Juices may be dispensed from beverage coolers or pitchers. Proportioned juices speed service and aid in portion control and can be replenished as required.

Serving Line Arrangement

A well-arranged serving line operates quickly and smoothly. Each customer can select the food that he or she wants and can get the food to the table while it is still at the proper eating temperature. Some of the planning techniques used to accomplish these goals are explained next.

Careful arrangement of hot and cold foods is extremely important. Personnel should be routed to avoid delay and unnecessary congestion in serving and dining areas.

If the physical setup allows, salad bars should be stationed where the patron can stop first before approaching the hot food serving line. Eliminating the stop at the salad bar en route to the tables will enable the hot food to be eaten while still hot.

If possible, separate the dessert bar from the serving line and place it in the center of the dining area. Using this setup, the patrons can pick up desserts after eating the main course. A reduction in the number of desserts consumed and a decrease in tray waste will usually be noticed.

Place trays and bowls at the head of the serving line. Silverware should be at the end of the serving line. Cups and glasses should be placed near the beverage dispensers. GMs with false overheads, wooden paneling, brand new equipment and a showplace galley will enhance the atmosphere. However, the key to customer satisfaction is good food that is well served.

Speed Line- All food items in a well-planned meal should vary in color, size, shape and texture.

Often, speed line items and recommended menus can be prepared and served in any GM without equipment changes or additions. Armed Forces Recipe Service (AFRS) has recipes that can be used as speed line items.

SERVING TECHNIQUES

As a CS, you may be placed in charge of the serving line. When this is the case, you should instruct personnel on the proper techniques for placing items on the serving line. This should include how to serve each item and how to place the items on the plate or tray. Correct serving techniques are very important.

Merchandizing

Presenting menu items on the serving line is doing what commercial food operators call merchandising or selling. Successful merchandising involves making these items so attractive and appetizing that customers want to eat them. When we present menu items on the serving line, we want to stimulate the appetite and promote the welfare of the patron.

People will always "eat with their eyes." Therefore, it is a good rule of thumb that foods that do not have an attractive and appealing appearance are often rejected without being tasted.

Service is faster when a person knows what foods are being served before reaching the serving line. It is a good practice to post the current menu, in full view, near the beginning of the serving line. It may either be in the form of a typed menu or a menu board. The menu board is used to display those food items that are being served for the current meal. Actually, any display method is acceptable that gives the customers time to decide which foods they desire before they reach the serving line. A suitable means of expressing calorie content for each item in the meal should be publicized for the benefit of dieters and weight watchers.

Centerpieces can be the focal point of the serving line. The realm of possibilities is limited only by imagination and time.

Ice, crushed, cubed, or carved, can be an interesting addition to highlight any meal. On special occasions and when practical, ice carvings can be used as distinctive centerpieces. They can take on many forms, such as swans, baskets, rabbits, deer and even turkeys. They may be elaborate or simple in design.

Garnishing

Though garnishing is just one step in presenting food attractively, it is a very important one. A garnish is described as an ornament or a decoration. Garnishes are planned to complement the flavor and the texture of the dish as well as add eye appeal. Any garnish used should be edible and should be such an integral part of the food that it will not be left on the plate.

If you were to plan a garnish for every food, it would be quite a job, but fortunately, not all foods need this help. An example is a meal consisting of beef pot roast, mashed potatoes, brown gravy, buttered peas, celery sticks and sweet pickles, hot rolls and butter and blueberry pie. Such a meal needs to have nothing added in the way of a garnish to make it attractive. The natural colors, textures and flavors combined in this meal provide enough variety to make the meal inviting to the eye and tempting to the taste.

Many of the AFRS recipes have a built-in garnish. Good examples of this are beef stew, tossed vegetable salads, browned casseroles and desserts such as cakes iced with frostings that complement the color and flavor of the cake.

Always refer to the food-preparation worksheet for information on garnishing various foods on the menu.

The following list contains some practical guides to effective food garnishing:

Use restraint in garnishing. Keep a picture of the whole meal in mind. Too many garnished dishes in one meal will spoil the effect. Select a suitable garnish, if one is needed and use it sparingly.

Vary food garnishes. Do not let garnishes become monotonous. Use a section of orange or a slice of peach on top of a pudding occasionally, instead of always using a maraschino cherry.

Plan garnishes ahead of time and show the serving personnel how garnished foods should be served.

Plan simple garnishes. Do not sacrifice timely preparation for the sake of garnishing.

Take advantage of the natural food color contrasts in combining foods. Do not rely on the addition of food coloring to the food to supply color contrast.

Carving

For special occasions such as holidays, hand carving hams and roasts on the serving line is preferred over machine slicing.

Carving plays an important role in serving meat in an appetizing manner. Carving affects the appearance and texture of the meat and the portion size can be controlled by carving. Therefore, as a CS, you must develop skill in carving.

The direction of meat grain determines how the meat is to be sliced. Most meats should be cut across the grain. Cross-grain slicing shortens the muscle fibers and produces a more tender slice of meat. Roast meats should be allowed to rest about 20 minutes after they have been removed from the oven before they are carved. This period allows the meat to “firm up.” It also allows the meat to reabsorb some of the juices lost during the roasting process. The meat becomes firm and is easier to cut in equal slices.

Slicing should be done on a hard rubber cutting board (color coded if possible) so the cutting edge of the knife is protected. The carving board should be placed in a sheet pan to catch the drippings while the meat is being sliced. Remove any string or netting that may have been used to hold the meat together while it was cooking. With a sharp carving knife (long, thin-bladed knife) and a two-tined fork in hand, carve the roast as follows:

- Cut one slice across the top of the roast so that the carver can determine the direction of the grain of the roast.
- Hold the roast in place by pressing the fork firmly into the top of the roast.
- Carve across the grain of the meat from right to left for a right-handed person and from left to right for a left-handed person. The carved portions can then be easily lifted to the plate or tray.

Sliced meat portions should be controlled by weight rather than by the number of slices. For this reason, the customer's preference for thick or thin meat slices can be satisfied by the carver.

Timing

The commanding officer sets the hours for serving the meal. The time published should be strictly adhered to; the day's work schedule in the galley should be organized to conform to the established hours for serving meals. The mess decks and serving personnel should be ready to begin serving on time. Planning will ensure prompt and efficient service.

The serving line should not be setup too early. You should set up about 45 minutes before the regular meal as a general rule. This also allows for the cooks and mess attendants to enjoy their meal.

When serving you should be alert to what needs to be replenished. Do not wait until the food item is completely depleted before replacing. Food items should not be left on the steam table line too long. Remember to batch-cook all items that can be cooked progressively. A good rule of thumb to remember is what is available for your first customer should be available for your last customer.

MESS DECK MASTER-AT-ARMS—The Mess Deck Master-at-Arms serves as the command's official host to the patrons of the food service facility. You are directly responsible to the food service officer or a designated representative who normally is the leading CS. Your duties and responsibilities are as follows:

- In charge of all spaces and equipment in the dining area, serving line, scullery and waste handling areas, except the equipment or areas under the cognizance of the leading CS
- In coordination with the leading CS, assign food service attendants to the service of food, maintenance and cleanliness of the dining area and equipment, operation of the scullery and handling and disposal of food waste
- Muster food service attendants daily and thoroughly inspect for personal neatness and cleanliness
- Supervise the cleaning of the dining area, serving line, scullery, dinnerware and silverware
- Ensure that all assigned equipment is operated in accordance with current instructions
- Inventory (conduct bi-monthly inventory) and maintain adequate dinnerware and silverware to ensure that sufficient quantities will be available throughout the serving period
- In conjunction with the medical department, administer a training program to food service attendants in sanitation, scullery operation and food handling
- Maintain order and discipline in assigned areas. Ashore, your duties will be slightly different and will be covered more specifically in Section 2.

FOOD SERVICE ATTENDANTS

Food service personnel should be trained to provide good customer service. Common courtesy is the backbone of good customer service. This cannot be overemphasized because the way the serving line personnel conduct themselves often determines the patrons' satisfaction or dissatisfaction with the meal.

Every person assigned to the serving line should be clean and look neat. This requires the washing of hands many times during the day. Uniforms, hats and aprons must be clean. Long sleeves should be rolled up to avoid touching the food and equipment. Food service attendants not only should be clean and neat, they should be trained to serve food properly because serving techniques also affect sanitation and attractiveness. They should be given detailed instructions on the proper serving of each menu item. To avoid possible contamination, utensils and dishes should be properly handled during serving. Servers' hands should not come in contact with eating surfaces of bowls, trays, or silverware.

Serving Line and GM Appearance

All items of mess gear should be inspected for cleanliness and should be supplied in sufficient number to last the entire serving period. The serving counters and steam tables should be checked for cleanliness before foods are set in place. Condiment bottles, including tops, should be thoroughly cleaned. During meal service, keep serving lines and salad bars wiped down. Wipe up spills immediately. Sponges may not be used in contact with cleaned and sanitized or in-use food contact surfaces.

SERVING THE FOOD

Use the 8-ounce ladle to serve as follows (key serving points follow each step):

- Pick up the soup ladle. Hold the ladle about halfway down the handle, grasping it between the thumb and forefinger. This firm hold makes it easier to balance a full ladle
- Stir the soup or chowder. Stirring distributes the solid particles and the temperature evenly
- Dip from the bottom. Solids settle to the bottom and the soup or chowder at the bottom of the insert is the hottest. Dip while solid particles are in motion
- Raise the ladle above the level of the soup bowl. The customer in line has extended the tray and soup bowl toward you. As you raise the ladle, the liquid it contains will settle so it is easier to pour and it will not spill over the sides
- Tip the ladle slightly and pour slowly. Direct the pouring into the center of the soup bowl.

Whenever you serve stew, chili con carne, or any similar item, you should use the same technique. Stir to distribute the solid particles and the liquid evenly and then dip from the bottom. This is the only time you should stir these items. When there is a lull and you are waiting for the next person to come through the line, do not stand and idly stir the vegetables. The less they are stirred, the better they will maintain their appetizing appearance.

As you serve items that are in shallow inserts, serve the food from the back of the pan toward the front of the pan in an orderly system across the pan. Types of food that should be served this way are macaroni and cheese and baked lasagna. A uniform way of serving helps maintain the fresh appearance of the food and promotes eye appeal.

Butter patties should be served from a dispenser. If a dispenser is not available, the ready-to-serve patties may be placed on a tray and set over a container of ice on the serving line. Unwrapped patties should be placed on paper chips and arranged on a tray set over ice.

Dry cereal also should be served from a dispenser. It should never be served directly from the packing carton. If a dispenser is not available, the individual packages should be arranged on a tray on the serving line.

Bread will remain fresher if served from dispensers. Otherwise, bread should be opened as needed, removed from the wrapper and placed in a shallow container on the serving line. Galley-baked bread should be sliced and replenished when needed during the meal. Chilled bread should be heated before meal service. To give a fresh-baked quality to breakfast pastries, coffee cakes and sweet rolls, heat them in an oven (250°F) for 8 to 10 minutes before serving.

Portions

The CS assigned to supervise the serving line has two responsibilities regarding portion control. One is to see that servings are fair. The other is to make sure the amount served is not more than the individual requests.

The portion size of some items can be regulated on the serving line by using standard ladles and spoons. When you serve meat, guesswork on correct portion sizes can be eliminated by using scales to check one or two slices before you cut the entire batch. Some meat items are precut in individual serving portions; for example, grill and Swiss steaks, pork slices (chops) and veal slices.

SUMMARY

This chapter discussed the responsibilities of the chain of command and support activities as required to understand task or function of Food Service Administration. We also discussed the function of stockage objectives and high and low limits. In addition to provision requirements this chapter also discussed the different approved food sources to include underway replenishments, transfers and local purchases. We have also discussed the importance having a well-arranged serving line, merchandizing, proper serving techniques and most importantly good customer service skills.

CHAPTER 2

NUTRITION AND MENU PLANNING

LEARNING OBJECTIVES: Upon completing this chapter, you should be able to do the following:

— Define the meaning of Nutrition and its elements.

— Break down the Food Guide Pyramid and serving sizes.

— Discuss the different aspects of Menu Planning and its tools.

INTRODUCTION

The purpose of this chapter is to provide you with the information and guidance needed in the areas of menu planning and nutrition and ultimately, in the supervision of other personnel in this area.

One of your most important duties as a Culinary Specialist (CS) is to see that the General Mess (GM) customers are always well fed. To be well fed means that they should have not only enough food but also the right kind of food in the proper combinations; that is, foods containing the correct amounts of the various nutrients necessary to good health and well-being.

The food service division is a customer service oriented division and customer satisfaction is one of our primary goals. We should take every opportunity to motivate the personnel who man the contact points (galley, serving line and mess area), whether civilian or military, to do their best and to take pride in the caliber of service they provide their shipmates. Motivating our personnel in these positions provides a special challenge to the senior CS. We should make sure the personnel manning these contact points realize that they are part of a people-oriented team, that they are an important part of our Navy and that the positions they hold at these contact points are positions of special trust that support our most important resource-our Navy men and women.

NUTRITION

Nutrition is the science of the nourishment of the human body, the science of food. To master this science we should familiarize ourselves with the nature of food. Food is composed of various nutrients: proteins, carbohydrates, fats, minerals, vitamins and water.

Nutrition concerns itself with determining what components are needed and how much of each is required to maintain healthy bodies. Nutrition concerns itself with the ways in which foods are altered in processing, storage and preparation and in the ways in which foods are transformed chemically in the body. Nutrition focuses on preparing and serving foods to ensure that the nutrients necessary to good health are not lost unnecessarily in the process. In addition, nutrition should be concerned with the social, economic, cultural and psychological implications of foods.

FOOD CONTENT

Food is any substance consisting essentially of protein, carbohydrates, fats, minerals, vitamins and water that is used in the body to sustain growth, to build and repair tissues, to furnish energy and to sustain the vital processes of the body. The body's needs for the various nutrients vary with age,

sex, occupation and environment. A child needs certain foods to grow and the body continues to require certain foods for its upkeep. Vitamins, minerals and proteins provide regulators that enable the body to use other materials. Fuel for the body's energy and warmth is provided by food.

Calories

A calorie is a quantity of food capable of producing such an amount of energy. Your skill in developing healthy menus plays a critical role in the support of the physical fitness and personal appearance of Navy personnel. The role of the foodservice division in meeting this need is providing lower calorie food choices. Some low-calorie food choices include low-calorie salad dressing; salads and relishes (raw vegetables); skim and/or low-fat milk; fresh and/or canned fruit drained of syrup; lean meat, poultry, fish, or seafood without added high-calorie sauces or gravies; a vegetable choice without added fat; and light desserts in smaller portions. The Navy Standard Core Menu (NSCM) should include all the basic menu components while eliminating high-calorie extras such as gravies, sauces and toppings. Calorie content is influenced by preparation methods and portion size.

Food Nutrients

There are six essential nutrients. Most of us can get enough of these nutrients by eating foods from the major food groups each day.

PROTEINS.—The chief function of protein in the body is to supply the tissue-building material. Protein itself is a chemically complex organic substance that contains nitrogen in combination with carbon, oxygen and hydrogen. In the process of digestion, these substances break down into smaller units called amino acids. These units, in turn, are rebuilt into body protein. Certain amino acids are necessary for maintaining growth, weight and good health. Foods are classified as protein foods only when they contain protein in sufficient amounts to be of value when the food is consumed in normal amounts.

Animal protein foods-meat, poultry, fish, eggs, milk and milk products, such as cheese-contain the necessary amino acids essential to body structure. The protein in cereals, vegetables and legumes lacks some of the important amino acids and alone cannot support growth. However, vegetable proteins such as dried beans, dried peas and peanuts can supplement the animal proteins and when they are served in the proper combination can provide all the essential amino acids without the addition of any animal protein.

FATS. — Fats provide twice as much energy and calories as carbohydrates or protein. Fats are important in the diet to furnish energy, provide essential fatty acids, transport fat-soluble vitamins and aid in their absorption, increase palatability and give a feeling of fullness. However, it is becoming increasingly clear that excessive amounts of total fat may lead to an increased risk of coronary heart and vascular diseases. Emphasis should be placed on planning menus toward attainment of lower fat concentrations while maintaining acceptability. A significant reduction of fat can be achieved by lowering added fats during food preparation and increasing the proportion of lean meats, fish, poultry, skim milk and other low-fat dairy products in the menu.

CARBOHYDRATES. — Carbohydrates are the main source of fuel/energy for the body and are generally low in calories, fat and high in fiber. Carbohydrates are broken down into two categories complex and simple carbohydrates.

Complex carbohydrates are found in grains, vegetables and legumes such as dried beans and split peas. Nutritionists recommend that we get at least 55 to 60 percent of our calories from complex carbohydrates. Complex carbohydrate foods play an important role in weight control. They supply the

body with energy in a constant, time-released manner. Since carbohydrates supply sustained energy, athletes should get 60 to 70 percent of their calories from carbohydrates. Carbohydrates are stored in the muscles as glycogen, which is essential for endurance. Additionally, a diet high in the soluble fiber found in legumes, fruits, vegetables and some grains may play a role in lowering blood cholesterol.

Simple carbohydrates are sugars such as glucose, sucrose (table sugar) and fructose. They are absorbed into the bloodstream very rapidly and provide a quick source of energy. Simple sugars provide few, if any nutrients, other than calories. Sources include table sugar, honey, jams/jellies, candy and skinless fruit.

MINERALS. — Minerals are components of foods that are involved in many body functions. For example, calcium is important for bone structure and iron is needed for our red blood cells to transport oxygen. Like vitamins, minerals are not a source of energy and are best obtained through a varied diet rather than supplements.

Calcium. — The most abundant mineral in the body is calcium and, except for iron, it is the most likely to be inadequate in the diets of many age groups. Calcium is a mineral needed to build bones, teeth and maintain bone strength. Ninety-nine (99)% of the bodies' calcium is found in bones. Sources of calcium are found within dairy foods such as milk, cheese and yogurt as well as dark green leafy vegetables. Calcium is required for blood to clot and for the heart to function normally. The nervous system does not work properly when calcium levels in the blood are below normal.

Phosphorus. — Phosphorus is necessary for building bones and teeth. Milk, cheese, eggs, meat, legumes, nuts, whole grain cereals and vegetables are good sources of this mineral.

Iron. — Iron carries oxygen in the blood. The best sources of iron are meats (especially liver). However, foods from some plants, such as dried beans, dark green leafy vegetables and grains, are good sources of iron, especially when eaten along with foods rich in vitamin C. Vitamin C helps the body absorb iron better.

Iodine.—The most important fact about iodine is that a deficiency of it can cause a goiter—a swelling of the thyroid gland. Important sources are seafood, plants grown in the soil near the sea and iodized salt, which is used in all Navy messes.

Sodium. — Sodium is a mineral that maintains proper fluid balance in the body and helps muscles relax / contract properly. Sodium has been linked to high blood pressure. People who are "salt sensitive" may have an increase in blood pressure when consuming excess sodium.

VITAMINS. — There are about 13 essential vitamins that the body needs to function normally. Four are called fat-soluble vitamins because they dissolve in fat. These are vitamins A, D, E and K. They are digested and absorbed with the help of fats from the diet. These vitamins can be stored in the body for long periods of time, mostly in fatty tissue and in the liver.

Nine other vitamins are called water soluble. They include eight B vitamins and vitamin C. These vitamins are not stored in the body very long, so you need to eat foods that are good sources of these vitamins every day.

A few of these vitamins are of great importance and you should know what foods provide them.

Vitamin A. This vitamin plays a very important role in eye function and in keeping the skin and mucous membranes resistant to infection. Although vitamin A occurs only in foods of animal origin, the

deep yellow and dark green vegetables and fruits supply a material—carotene—that your body can turn into vitamin A.

Vitamin A is found in yellow, orange and green vegetables; yellow fruits; and in the fat of animal products like fish, milk, eggs and liver. Both cheese made from whole milk and margarine enriched with vitamin A supply this vitamin.

Vitamin C. Vitamin C, ascorbic acid, is not completely understood, but it is considered important in helping to maintain the cementing material that holds body cells together. Vitamin C is needed for wound healing; for development of blood vessels, bones, teeth and other tissues; and for minerals to be used by the body.

Vitamin C is found in citrus fruits, melons, berries, leafy green vegetables, broccoli, raw cabbage, spinach and turnip and collard greens. Potatoes and sweet potatoes provide helpful amounts of vitamin C and so do tomatoes and peppers.

Vitamin D. Vitamin D is readily available in fortified milk. Sunlight enables the body to produce this vitamin if it has a chance to shine directly on the skin. Vitamin D is needed for using calcium and phosphorus to build strong bones and teeth. Vitamin D is added to most milk. It is also found in fatty fish, liver, eggs and butter.

Vitamin E. Vitamin E helps preserve the cell tissues. Although vitamin E's exact role in the body is not fully understood, it is being explored as an antioxidant that may retard some aspects of the aging process. Vitamin E is found in a wide variety of foods and most people get enough. Vegetable oils and whole grain cereals are particularly rich sources.

Vitamin K. Vitamin K is essential because it indirectly helps blood to clot. Vitamin K is widely distributed in a variety of foods such as the green and leafy vegetables, tomatoes, cauliflower, egg yolks, soybean oil and any kind of liver. It is also manufactured in the body.

Three of the best known B vitamins-riboflavin, thiamine and niacin release the energy in food. They also have a role in the nervous system, keep the digestive system working calmly and help maintain a healthy skin.

Thiamine (B1). Thiamine is abundant in only a few foods. Lean pork is one. Dry beans and peas, some of the organ meats and some nuts supply some thiamine.

A lack of thiamine (vitamin B) causes beriberi. Fortunately, this disease is now almost nonexistent in the United States, although it is still seen in some alcoholics.

Riboflavin (B2). Riboflavin is easy to find and extremely important in the diet. It is plentifully supplied by meats, milk and whole grain or enriched breads and cereals. Organ meats (liver, kidney and so on) also supply this vitamin.

Niacin. Niacin (nicotinic acid) prevents a disease called pellagra. It aids in digestion and the health of the skin. Whole grain and enriched cereals and bread are dependable sources of niacin. Niacin also can be found in meat and meat products and peas and beans.

Other B Vitamins. Other B vitamins, such as B6, B12 and folacin, are needed to maintain normal hemoglobin-the substance in blood that carries oxygen to the tissues. Vitamin B12 occurs in foods of animal origin. Folacin helps in the production of red blood cells and is available in many

foods but in small quantities. Sources of folacin are liver, green vegetables, whole grains and dry beans.

Strict vegetarians run a risk of developing the symptoms of B12 deficiency; these include soreness of the mouth and tongue, numbness and tingling in the hands and legs, anemia and loss of coordination.

WATER. Water is often called the forgotten nutrient. It is needed to replace lost body water. Water helps transport nutrients, remove waste and regulate body temperature.

CONSERVING NUTRIENTS. It is not enough just to select the proper foods for the menu. They must be prepared in such a way that valuable nutrients are not lost. Table 2-1 presents summary information about vitamins. In addition to listing foods that are good sources of vitamins, it also reveals conditions under which the vitamin content may be reduced and the effect of the vitamin content deficiency in the diet. This information is valuable to you in making and analyzing menus and also in conserving vitamins during cooking. The term stability used in the illustration refers to the ability of the various substances to withstand destruction under the conditions mentioned.

The following cooking rules, if followed, will make your meals more nutritious and add to the general health of the crew:

- Serve fresh fruits and vegetables as soon after you receive them as possible
- Handle fresh fruits and vegetables carefully because bruising causes a rapid loss of vitamins
- Store fresh fruits and vegetables properly until they are to be used
- Do not soak vegetables in water longer than necessary to freshen or clean them. Water will dissolve vitamins B_1, B_2, C and minerals
- To cook vegetables, place them in rapidly boiling water. Bring the water back to a boil and reduce to a simmer
- Cook vegetables quickly and just until tender in order to leave them with some of their original crispness
- Cook vegetables in as little water as possible
- Do not throw away cooking water. Save it for use in soups, sauces and gravies
- Heat canned vegetables quickly just before serving
- Shred outer leaves of lettuce, cabbage and green leaves of celery for use in flavoring soups
- Serve fruits and vegetables raw in salads
- Prepare fruits and vegetables for salads just before serving
- When salmon salad is prepared, save the juice and use it in salad dressing or as a part of the liquid for salmon loaf or sauce
- Prepare hot foods just in time to be served. Never prepare them early and reheat them.

The foods that we eat each day must supply the proteins, carbohydrates, fats, minerals and vitamins that are needed to maintain the body in a healthy condition. Most foods contain more than one

nutrient, but no single food provides all the nutrients in proper quantities. Therefore, it is necessary for the diet to include a variety of foods and this is accomplished through well-planned menus.

Table 2-1, Summary Information on Vitamins.

Chemical name	A	C	D	Vitamin B complex		
	Carotene	Ascorbic acid	Calciferol	Thiamine (B_1)	Riboflavin (B_2)	Niacin
Important food sources	Liver Egg yolk Vegetables Green Yellow Butter Cream Fish-liver oil	Citrus fruits Cabbage Tomatoes Cantaloupes Strawberries Potatoes in jackets	Fish-liver oil Butter Egg yolk Liver	Pork Liver Organ meats Nuts Legumes Whole wheat Whole grains Wheat germ	Liver Meats Eggs Milk Enriched bread Vegetables Green Leafy	Meat Fish Poultry Liver Green peas
Stability: cooking & drying light	Gradual destruction by exposure to heat and drying at high temperature.	Unstable to heat and oxidation, except in acids. Destroyed by drying and aging.	Stable to heating, aging, and storing.	Unstable to heat and oxidation.	Stable to heat in cooking, to acids and oxidation. Unstable to light.	Stable to heat, light, and oxidation, acids and alkalis.
Lack of this vitamin causes	Night blindness; Glare blindness, Rough dry skin Dry mucous membrane	Scurvy Sore mouth Stiff joints Sore and bleeding gums Weak-walled capillaries	Rickets Soft bones Bowed legs Poor teeth Skeletal deformities	Beriberi (man) Poor appetite Constipation Fatigue	Eye sensitivity Cataract	Pellagra

FOOD GUIDE PYRAMID

This pyramid (Figure 2-1) is a visual companion to the Dietary Guidelines for Americans. The new graphic conveys the three essential elements of a healthy diet: proportion, moderation and variety;

- Proportion is the relative amount of food to choose from each major food group
- Moderation is eating fats, oils and sugars sparingly
- Variety emphasizes the importance of eating a selection of different foods from each of the major food groups every day.

NOTE: The minimum suggested servings on the pyramid are the minimum number of servings needed each day to stay healthy, even when trying to lose weight.

The food pyramid graphically communicates the message of the Dietary Guidelines for Americans— diets should be built upon a base of complex carbohydrates and less fat. The placement of the food groups starting at the base of the pyramid conveys the current recommendations. These recommendations are as follows: eat more grains, vegetables and fruits; eat moderate amounts of lean

meats and dairy foods; and use sweets, fats and oils sparingly. The food guide pyramid graphic (Figure 2-1) shows that all food groups are important to the diet.

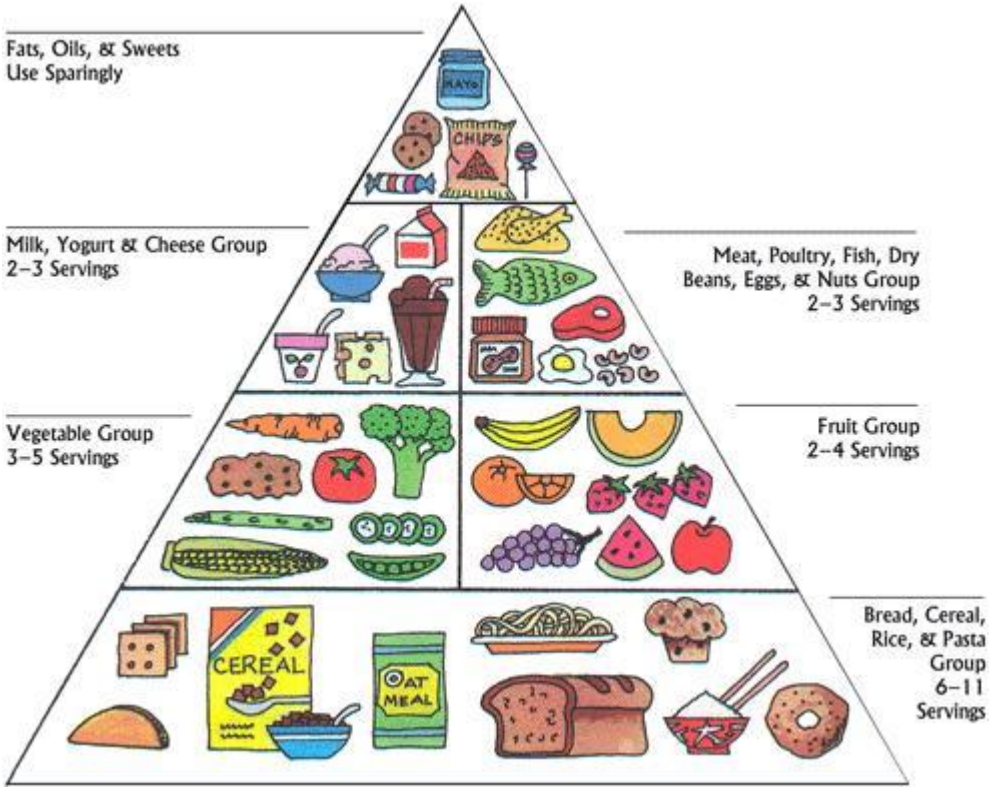


Figure 2-1, Food Guide PYRAMID.

Grain, Cereal, Rice and Pasta Group

The food pyramid emphasizes whole grain and cereal foods as the basis of a nutritious diet. Wheat, corn, oats and other grains have very little fat and are cholesterol free. These foods provide complex carbohydrates—an important source of energy, especially in low-fat diets. They also provide fiber.

A person needs 6 to 11 servings from this group daily, depending on their activity level. You should offer whole grain and enriched or fortified products, but be sure to include some whole grain bread or cereals.

WHAT IS A SERVING?— It includes all products made with whole grain or enriched flour or meal such as bread, biscuits, muffins, waffles, pancakes, cooked or ready-to-eat cereals, cornmeal, flour, grits, macaroni and spaghetti, noodles, rice, rolled oats and barley.

The following are some examples of a typical serving from the grain group:

1 slice of bread

1/2 cup of cooked cereal, cornmeal, grits, macaroni, noodles, rice or spaghetti

1 ounce of ready-to-eat cereal

NUTRITIVE VALUE. — These whole grain or enriched foods are important sources of B vitamins and iron. They also provide protein and are a major source of this nutrient in vegetarian diets. Additionally, they contribute magnesium, folacin and fiber.

Most breakfast cereals are fortified at levels higher than those occurring in natural whole grain. In fact, some fortification adds vitamins not normally found in cereals (namely, vitamins A, B12, C and D). However, even these cereals (if refined) and other refined products (enriched or not) maybe low in some other vitamins and trace minerals. This is because these nutrients are partially removed from the whole grain in the milling process and not replaced. Thus, it is a good idea to include some less refined or whole grain products in your menu.

Vegetable Group

Vegetables are naturally low in fat and contain no cholesterol. They provide vitamins such as vitamins A, C and folate and minerals such as iron and magnesium. Vegetables also provide fiber. Unlike the traditional “basic four,” the food pyramid separates vegetables and fruits into individual groups to highlight how important it is to get adequate amounts of both.

Because vegetables are so important, GM menus should offer two hot vegetables at both lunch and dinner meals whenever possible. This gives the patrons a choice they will enjoy and improves the nutritional profile of the meal. A person needs 2.5 cups of servings daily, depending on their activity level. You should include one good vitamin C source each day. Also, include deep yellow or dark green vegetables (for vitamin A) and unpeeled vegetables, especially those with edible seeds (for fiber).

WHAT IS A SERVING? — It includes all vegetables. You should count the following as a serving from the vegetable group:

1 cup of raw leafy vegetables

1/2 cup of other vegetables that are cooked or chopped raw

3/4 cup of vegetable or tomato juice.

NUTRITIVE VALUE.—Different types of vegetables provide different nutrients; therefore, your menu should feature a variety of vegetables. Dark green and deep yellow vegetables are good sources of vitamin A. Most dark green vegetables, if not overcooked, are also reliable sources of vitamin C. They are also valued for providing riboflavin, folacin, iron and magnesium. Certain greens—collard, kale, mustard, turnip and dandelion—provide calcium. Nearly all vegetables are low in fat and none contains cholesterol.

Fruit Group

Most fruits are low in fat and free of cholesterol. Fruits and fruit juices provide important amounts of vitamin A and potassium. The food pyramid suggests a person receive 2 cups of servings daily from this group, depending on their activity level.

WHAT IS A SERVING? — It includes all fruits. You should count the following as examples of a serving from the fruit group:

A medium apple, orange, or banana.

1/2 cup of chopped, cooked, or canned fruit.

1/2 cup of fruit juice. You should only count 100-percent fruit juice as fruit.

NUTRITIVE VALUE. — Any kind of fruit fits into a low-fat diet. Nearly all fruits are low in fat and none contain cholesterol. This group is also important for its contribution of vitamins A and C and fiber. As with vegetables, different types of fruits provide different nutrients. Reliable sources of vitamin C are citrus fruits (oranges, grapefruits, lemons), melons and berries. Fruits with skin have more fiber.

Milk, Yogurt and Cheese Group

Milk products provide protein, vitamins and minerals as well as fat, cholesterol and calories. Milk yogurt and cheese are the best sources of calcium. The food pyramid suggests 3 cups of daily servings of milk, yogurt, or cheese each day, depending on a person's activity level. Most people only need 2 servings. However, 3 servings are suggested for pregnant women, nursing mothers, teenagers and young adults to age 24. Young adults should continue to have 3 servings of the milk group until age 24. This is to ensure a calcium intake that allows the development of peak bone mass during the formative years.

WHAT IS A SERVING? — A serving includes milk in any form such as whole, skim, low-fat, evaporated, buttermilk and nonfat dry milk. A serving also may consist of yogurt, ice cream, ice milk and cheese, including cottage cheese. You should count the following as examples of a serving from this group:

One 8-ounce cup of milk or yogurt

1 1/2 ounces of natural cheese

2 ounces of processed cheese.

NUTRITIVE VALUE. — Milk and most milk products are relied on to provide protein, calcium, phosphorus and vitamins A, B1, B2 and B12. In fact, milk and most milk products are the major source of calcium in the American diet. In addition, liquid milk is fortified with vitamin D, which aids in the absorption of calcium. When fortified with vitamins A and D, low-fat or skim milk products have essentially the same nutrients as whole milk products, but fewer calories and less fat content.

Some dairy products contain large amounts of fat and cholesterol. However, low-fat dairy products contain equivalent amounts of calcium. To provide lower fat choices for your patrons, cook with nonfat dry milk; serve 1 percent low-fat and skim milk; offer low-fat yogurt and lower fat milk desserts, like ice milk or frozen yogurt. Include cheese scheduling in your menu planning. For example, au gratin potatoes and club spinach both have cheese. Therefore, limit to one dish of either per meal.

Meat, Poultry, Fish, Dry Beans, Eggs and Nuts Group

The food pyramid suggests 2 to 3 servings each day from this group, depending on a person's activity level. The total amount of these servings should be equivalent to 5.5 ounces of cooked lean meat, poultry, or fish per day.

WHAT IS A SERVING?— It includes beef, veal, lamb, pork poultry, fish, shellfish (shrimp, oysters, crabs and so on), organ meats (liver, kidneys and so on), dry beans or peas, soybeans, lentils, eggs, seeds, nuts, peanuts and peanut butter.

Counting to see if you have an equivalent of 5 to 7 ounces of cooked lean meat can be difficult. This is because portion sizes vary with the type of food and meal. For example, 6 ounces may come from one egg for breakfast (count as 1 ounce of lean meat); 2 ounces of sliced turkey in a sandwich for lunch; and 3 ounces of cooked hamburger for dinner.

NUTRITIVE VALUE. — Meat, poultry and fish supply protein, B vitamins, iron and zinc. The other foods in this group—dry beans, eggs and nuts-are similar to meats in providing protein and most required vitamins and minerals.

It is a good idea to vary the choices among these foods as each has distinct nutritional advantages. For example, red meats and oysters are good sources of zinc. Liver and egg yolks are valuable sources of vitamin A. Dry beans, dry peas, soybeans and nuts are worthwhile sources of magnesium. The flesh of fish and poultry is relatively low in calories and saturated fat. Some seeds such as sunflower and sesame contribute polyunsaturated fatty acids that are an essential part of a balanced diet.

Cholesterol, like vitamin B12, occurs naturally only in foods of animal origin. All meats contain cholesterol, present in both the lean meat and the fat. The highest concentration is found in organ meats and in egg yolks. Fish and shellfish, except shrimp, are relatively low in cholesterol. Dairy products also supply cholesterol.

The meat group is an excellent place to trim the fat in the diet. Contrary to popular belief, red meat does not need to be avoided. Red meat is a good source of protein, iron, zinc and several other important nutrients. The idea is to cut down on large servings of meat rather than eliminating it entirely. Fish is naturally low in fat and so are dry beans and peas.

To reduce fat from the meat group, choose lean meats most of the time; take the skin off poultry; trim any extra fat off meat; eat more fish, dry beans and peas. Trim the fat off meat; broil, roast, or simmer, instead of frying. Nuts and seeds are high in fat. Eat nuts and seeds in moderation.

The following are some lean meat choices that you should incorporate into your menu:

- Beef—roast or steaks from the round, loin, sirloin, or chuck arm cuts
- Veal—all cuts except ground
- Lamb—roasts or chops from the leg or loin cuts
- Pork—roasts or chops from the tenderloin, center loin, or ham cuts
- Chicken and turkey—light and dark meat without skin
- Fish—most are low in fat, those marinated or canned in oil are higher.

Fats, Oils and Sweets

Fats, oils and sweets are at the top of the food pyramid and should be used sparingly. A low-fat style of eating allows room for use of some fats and high-fat foods. The idea is balance and moderation. The food pyramid suggests using added fats such as butter, margarine and salad dressing sparingly. It is helpful to notice the amount of fat in these foods. Most of the added sugar in the Ameri-

can diet comes from soft drinks, candy, jams, jellies, syrups and table sugar. Choose fewer foods that are high in sugars-candy, sweet desserts and soft drinks.

MENU PLANNING

Menu planning in the Navy means devising meals that are nutritionally adequate and acceptable to the patrons. The term providing for food needs means that enough nourishing food must be served to satisfy the needs of the patrons and that this food should be attractive and acceptable to these personnel. This service must be accomplished consistently under varying afloat and ashore operating conditions in widely different geographic locations, using the foodservice capabilities of your ship or station.

Calories:	Sedentary 1,600	Active 2,200	Very Active 2,800
Servings of:			
Breads and grains	6	9	11
Vegetables	3	4	5
Fruits	2	3	4
Milk and dairy products	2 to 3*	2 to 3*	2 to 3*
Meat group (oz)	5	6	7
Total fat (g)	53	73	93
Total added sugar (tsp)	6	12	18

*Pregnant women, nursing mothers, teenagers, and young adults to age 24 need three servings.

Table 2-2, Illustrates the range of caloric intake and servings needed from each major food group based on activity level.

FACTORS AFFECTING MENUS

Many factors affect the menu planner's choice of foods for the menu: nutritional requirements, food cost and availability of supplies/equipment, skill level of galley personnel and manning levels.

Seasonal Availability of Food Items

Seasonal availability of food is important in that menus should be adjusted to take advantage of seasonal changes in the supply of fresh produce. Canned, frozen, or dehydrated fruits, juices and vegetables supplement the fresh menu items and are comparable in nutritive value.

MENU-PLANNING TOOLS

Menus are developed with consideration for nutrition, cost, acceptability, worldwide supportability, CS skill sets, equipment and platform storage challenges.

Food-Preparation Worksheet

Food-Preparation Worksheet (Figure 2-2), NAVSUP Form 1090, is very important document and should be properly maintained. This form serves as a written directive between the Leading CS and the personnel on watch. Food service personnel should utilize the NAVSUP 1090 to plan and discuss preparation techniques.

The worksheet helps reveal the strengths and weaknesses of the menu. When the preparation of the daily menu is plotted on a worksheet, weaknesses and bottlenecks stand out vividly. For example, you may find that all menu items are to be prepared in the same three steam-jacketed kettles or that the three main menu items are to be oven-prepared, each item requiring a different oven temperature.

The worksheet helps you to train subordinates who will be responsible for a galley operation in the future. Discuss the worksheet with your watch captains so that they know exactly how the menu is to be prepared. Point out the supervisory techniques you want them to use in their working relations with the crew. After each meal, meet with your watch captain and key personnel to critique the meal. This is the ideal time to discuss the acceptability of the menu.

Finally, the worksheet serves as a means for establishing control of (1) issues to the GMs (the quantities posted on NAVSUP 1282 should agree with the quantities needed to prepare the number of portions specified), (2) the quantity of each menu item prepared, (3) the actual prepared and (4) leftover menu items. Completed worksheets on file provide the invaluable past history needed for establishing controls. The acceptability of menu items will determine the quantity to break out, quantity to prepare and any change in portion size.

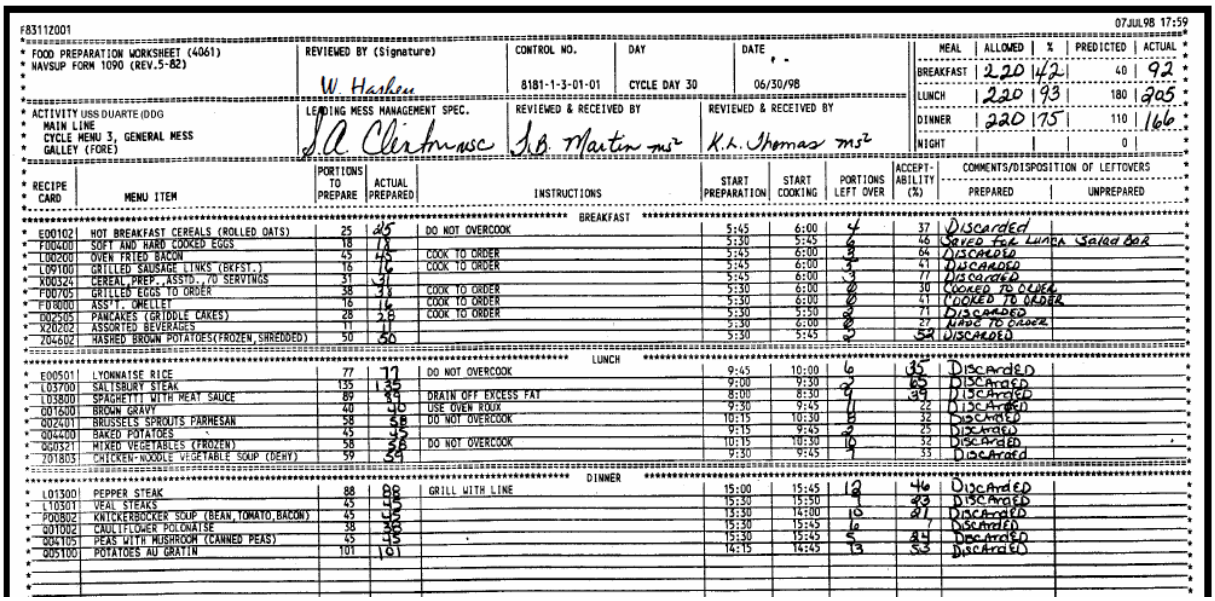
Acceptability Factors

A food acceptance factor is one that expresses the percentage of people who eat a particular dish. To obtain an acceptability factor for individual menu items, divide the number of portions of the item served by the number of patrons in attendance at the meal.

Acceptance factors for the same menu item may vary from meal to meal. Different combinations of foods on a menu, different weather, or varying appetites may alter the acceptance of an item. A more accurate acceptance factor may result by averaging figures obtained for a particular menu over a period of time.

General Mess operations under FSM will have their acceptability posted by the records keeper. The manual entry on the 1090 is not required but highly recommended as a tool to train junior CS’s. Good food acceptance means less plate waste and fewer leftovers to account for in planning future meals. Even popular foods may become monotonous if served too often.

FOOD PREPARATION WORKSHEET
(NAVSUP FORM 1090)



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* FOOD PREPARATION WORKSHEET (4061)
* NAVSUP FORM 1090 (REV.5-82)

REVIEWED BY (Signature): W Harkins | CONTROL NO.: 8181-1-3-01-01 | DAY: CYCLE DAY 30 | DATE: 06/30/98

ACTIVITY USS DUARTE (DDG)
MAIN LINE
CYCLE MENU 3, GENERAL MESS
GALLEY (FORE)

LEADING MESS MANAGEMENT SPEC.: J.A. Clintmusc | REVIEWED & RECEIVED BY: J.B. Martin MS2 | REVIEWED & RECEIVED BY: K.L. Thomas MS2

MEAL	ALLOWED	%	PREDICTED	ACTUAL
BREAKFAST	220	42	40	92
LUNCH	220	93	180	205
DINNER	220	75	110	166
NIGHT			0	

RECIPE CARD	MENU ITEM	PORTIONS TO PREPARE	ACTUAL PREPARED	INSTRUCTIONS	START PREPARATION	START COOKING	PORTIONS LEFT OVER	ACCEPT-ABILITY (%)	COMMENTS/DISPOSITION OF LEFTOVERS: PREPARED	UNPREPARED
	BREAKFAST									
E00102	HOT BREAKFAST CEREALS (ROLLED OATS)	25	85	DO NOT OVERCOOK	5:45	6:00	4	37	DISCARDED	
F00400	SOFT AND HARD COOKED EGGS	18	18		5:30	5:45	6	66	SAVED FOR LUNCH SALAD BAR	
L00200	OVEN FRIED BACON	45	40	COOK TO ORDER	5:45	6:00	3	64	DISCARDED	
L09100	GRILLED SAUSAGE LINKS (BKFST.)	16	16	COOK TO ORDER	5:45	6:00	3	41	DISCARDED	
X00324	CEREAL,PREP.,ASSTD.,70 SERVINGS	31	31		5:45	6:00	13	77	DISCARDED	
F00705	GRILLED EGGS TO ORDER	38	38	COOK TO ORDER	5:30	6:00	0	30	COOKED TO ORDER	
F08000	ASS'T. OMELET	16	16	COOK TO ORDER	5:30	6:00	0	41	COOKED TO ORDER	
B02505	PANCAKES (GRIDDLE CAKES)	28	28	COOK TO ORDER	5:30	5:50	8	71	DISCARDED	
X20202	ASSORTED BEVERAGES	11	11		5:30	6:00	8	27	WERE TO CLOSE	
Z04602	MASHED BROWN POTATOES(FROZEN,SHREDDED)	50	50		5:30	5:45	9	52	DISCARDED	
	LUNCH									
E00501	LYONNAISE RICE	77	77	DO NOT OVERCOOK	9:45	10:00	6	35	DISCARDED	
L03700	SALISBURY STEAK	135	135		9:00	9:30	2	65	DISCARDED	
L03800	SPAGHETTI WITH MEAT SAUCE	89	89	DRAIN OFF EXCESS FAT	8:00	8:30	9	39	DISCARDED	
Q01600	BROWN GRAVY	40	40	USE OVEN ROUX	9:30	9:45	11	22	DISCARDED	
Q02401	BRUSSELS SPROUTS PARMESAN	58	58	DO NOT OVERCOOK	10:15	10:30	8	32	DISCARDED	
Q04400	BAKED POTATOES	45	45		9:15	9:45	2	25	DISCARDED	
Q05321	MIXED VEGETABLES (FROZEN)	58	58	DO NOT OVERCOOK	10:15	10:30	10	32	DISCARDED	
Z01803	CHICKEN-NOODLE VEGETABLE SOUP (DEHY)	59	59		9:30	9:45	9	33	DISCARDED	
	DINNER									
L01300	PEPPER STEAK	88	88	GRILL WITH LINE	15:00	15:45	12	46	DISCARDED	
L10301	VEAL STEAKS	45	45		15:30	15:50	8	23	DISCARDED	
P00802	KNICKERBOCKER SOUP (BEAN,TOMATO,BACON)	45	45		13:30	14:00	10	21	DISCARDED	
Q01002	CAULIFLOWER POLONAISE	38	38		15:30	15:45	10	7	DISCARDED	
Q04105	PEAS WITH MUSHROOM (CANNED PEAS)	45	45		15:30	15:45	5	44	DISCARDED	
Q05100	POTATOES AU GRATIN	101	101		14:15	14:45	13	53	DISCARDED	

Figure 2-2, Food Preparation Worksheet NAVSUP Form 1090.

Food Usage Records

A first consideration in advance menu planning should be balanced requisitioning. Past usage records help attain this balance by showing what is on hand and what items are needed. Planning calendars of stock rotation will prevent a rewrite of menus to incorporate surplus stocks of on-hand items. Items should be rotated on a regular basis and the oldest stocks should be used first.

Armed Forces Recipe Service (AFRS), NAVSUP P-7. — The AFRS, NAVSUP P-7, consists of a file of over 2,000 recipes and recipe variations. The recipes are standardized to generally yield 100 portions and include efficient preparation techniques. The Index of Recipes, an adjunct to the AFRS, is a compact list of all recipes contained in the recipe service. Continuous use of the Index of Recipes in planning menus will help avoid menu monotony and will provide ideas for new menu combinations. Commands are encouraged to send their favorite recipes to NAVSUP for consideration for inclusion in the AFRS. All recipes are tested and evaluated for military wide acceptability and adaptability.

The AFRS is a basic tool for requisitioning and planning workloads. Cost records for individual recipes and recipe acceptability factors may be added to the recipe cards. Recipe cards are also used to obtain a plan for the most efficient use of galley equipment. The use of local recipes is encouraged. Local recipes should be in AFRS format and approved by the food service officer.

Navy Food Service, NAVSUP P-476. — This publication is a quarterly publication of NAVSUP and is distributed to all activities having GMs. The publication contains useful information on commodities, equipment for galley use, GM modernization, revisions to publications, suggested special events or holiday menus, nutrition, sanitation, training, hints on food preparation, food service operations, menu planning and recordkeeping.

Meal Attendance Predictions

Ashore units use signature head counts to document actual personnel fed. Afloat units underway receive full ration credit for all enlisted personnel entitled to be fed in the GM. A mechanical counting device should be used to determine ration credit for in-port periods based on the number of meals actually fed. There are variations in meal attendance from day to day and meal to meal. Head count records should be kept to show how many people were served at each meal. Estimates of future attendance are based on past records and experience. Factors such as weather, proximity to payday and liberty trends must be taken into account when predicting attendance.

Menu Design

The NSCM was developed by NAVSUP dietician and chef, Natick Labs and fleet representatives within the Culinary Specialist Community. The NSCM was developed to meet all required menu-planning standards and provide a menu to all navy ships. Cycle menus provide more accurate forecasting for ration cost, requisition requirements and daily food preparations.

Advantages of the NSCM

The principal advantages of a NSCM are better meals, time and labor savings, improved cost control and more effective supervision and training.

In deciding the most desirable cycle length, the variety and frequency of resupply and the number of duty sections should be taken into consideration as well as the CS watch schedule. Because the accepted cook watch is port and starboard, an odd-numbered day cycle (21 days) allows each watch the opportunity to prepare the entire cycle menu by the time the cycle has repeated two times. If the daily ration control record shows that the cost of the meals in the cycle menu is excessive or is grossly below the allowed ration rate, the menu can be changed to bring costs within acceptable limits. If inventories stocks are either in long or short supply, temporary adjustments to the cycle menu can be made to balance stocks.

Loading Guides. — The best guides determining loading requirements are accurate records of a ship's own past usage of previous extended cruises. Usage data and menus used during extended cruises should be collected to provide a basis for balanced loading for future deployment.

The 45-day Subsistence Endurance Base (SEB) contained in Food Service Management, NAVSUP P-486, is a guide that can be used with ship's usage data in planning menus and load lists for 60, 75 and 90-day operational endurances.

Menus not only affect the health and morale of the crew, but also directly affect the endurance of a ship. Endurance requirements vary among ship types and classes and the amount of food storage space varies even between ships with identical complements. Proportionately smaller quantities of perishable foods are available on extended cruises and these calls for increased use of semi-perishables, particularly ration-dense foods.

Menu Boards. — Menu boards assist in planning menus that are based on crew preferences. There are two kinds of menu boards: (1) a menu-planning board that actually plans the menu within the foodservice division and (2) a menu-review board that functions in an advisory capacity.

Menu-Production Review Board.—This board is composed of CS and is chaired by the Leading CS, S-2 LPO, or Watch Captain who provide feedback for menu production. Feedback results

should be submitted to command regional TYCOM/Regional Galley Program Director for consideration then sent to NAVSUP NSCM Program Manager.

Menu-Review Board.—The menu-review board consists of personnel from all divisions on board. This board can bring in new ideas on menu planning. All COs formulate their own policy as to the number of board members. Menu boards, their requirements and functions, are discussed in General Mess Management, NAVSUP 486.

Accompaniments to menu items should be written alongside them, shown as follows, or may be written directly underneath them, space permitting.

PLAN SPECIAL MENUS

Meals have three roles in Navy life: (1) to support physical health and fitness, (2) to build morale and (3) to provide an occasion for socializing.

Holiday or Special Event Menus

Special meals for holidays or special meal celebrations (in GMs either afloat or ashore) provide opportunities for festivity among the crew. A well-planned special meal adds interest and creates real enthusiasm among the CSs and crew.

Figure 2-3 is a calendar listing special occasions generally celebrated. It is included for a handy reference.

Printing.—Some GMs may have fancy menus printed for their entire cycle menu or for special events or holidays. The printed menu gives a kind of flavor of its own to special meals. These menus need not be elaborate to be attractive. They can be simply produced using a graphics program on a computer or you can have them produced professionally through the supply system.

Usually if menus are to be printed professionally, they are either going to be used permanently for a cycle menu or for holiday menus repeating from year to year.

JANUARY	■ New Year's Day ■ Martin Luther King, Jr.'s Birthday	**JULY**	■ Independence Day ■ John Paul Jones' Birthday
FEBRUARY	■ Valentine's Day ■ President's Day ■ Black History Month	**SEPTEMBER**	■ Labor Day ■ Hispanic Heritage Week
MARCH	■ St. Patrick's Day ■ Easter Sunday (or April) ■ Navy Nutrition Month	**OCTOBER**	■ Columbus Day ■ Navy Birthday
MAY	■ Armed Forces Day ■ Mother's Day ■ Memorial Day ■ Pan Asian American Heritage Week	**NOVEMBER**	■ Veteran's Day ■ Thanksgiving
JUNE	■ Father's Day ■ Flag Day	**DECEMBER**	■ Christmas

Figure 2-3, Calendar of special holidays and religious days.

Above all, avoid overtaxing the cooking and serving facilities and personnel by planning menus that, for example, require too much oven space. Cooked-to-order foods are especially appropriate for brunch meals.

SUMMARY

In this chapter we discussed Nutrition and its elements, break down of the Food Guide Pyramid, Menu boards, different aspects of Special Menu Planning and Drafting.

CHAPTER 3

FOODSERVICE MANAGEMENT

LEARNING OBJECTIVES: Upon completing this chapter, you should be able to do the following:

— Identify the Duty and Responsibility of Food Service Officer Leading Culinary Specialist.

— Identify the Letters of Authority, Authorization and Appointment.

— Identify the Food Service Management (FSM) and System Procedures.

— Define the following:

a. Food Service Organizational and Planning Policies.

b. Navy Food Management Team Assistance.

INTRODUCTION

As a Leading CS, you may be charged with the responsibility of managing a General Mess (GM). This could be one of your most challenging and rewarding assignments. During the course of your career, you probably have gained a wealth of knowledge as your responsibilities have increased. At this point, you should understand all phases of foodservice operations for which you have been responsible.

This chapter discusses procedures used in combination with your acquired experience and rate-related reference guides to enable you to efficiently manage a GM.

GMs are established to provide Navy personnel with wholesome, nutritious, well-balanced meals through the proper preparation and service of food items. At this point, you should know that you (the Leading CS) are responsible for making sure the highest standards of foodservice are upheld.

As the Leading CS, you are responsible to the Food Service Officer (FSO) for the efficient management of the GM. You must plan menus, order all food items, schedule deliveries of food items and check and inspect receipts. You must supervise storage and issue of food items and determine load capacity. You also must administer work schedules for foodservice personnel, assign jobs to the rotational pool personnel and initiate corrective action to maintain the facilities and equipment. With aid from the medical department, you must administer a training program for the foodservice division in food sanitation. Instruction should be based on the Bureau of Medicine and Surgery's Manual of Naval Preventive Medicine, NAVMED P-5010, Chapter 1, "Food Service Sanitation."

FOODSERVICE ORGANIZATIONAL AND PLANNING POLICIES

Messes are operated according to the various laws, directives, regulations and instructions. Some laws apply to all services while others apply only to the Navy. Some regulations and instructions are Navywide and some are local. As a CS First Class or Chief, you should be familiar with those that pertain to the operation of your particular GM. It is your job to see that they are enforced.

The procedures contained in the Food Service Management, NAVSUP P-486, establishes policies to administrate, operate and manage Navy GMs afloat and ashore. These procedures are the minimum that is essential to good foodservice management and are mandatory unless specifically stated as optional. However, these procedures are not limiting when conditions require additional controls. When necessary, Heads of Supply Departments, Commanding Officers (COs), or higher authority may supplement procedures that do not conflict with the NAVSUP P-486.

NAVY FOOD MANAGEMENT TEAM ASSISTANCE

Excellence in foodservice is essential to the health and morale of Navy members and to the overall readiness of the Operating Forces. Because food is a major item of expense, use of the best food management practices (conservation, preparation and serving) is necessary.

Navy Food Management Teams (NFMTs) use on-the-job training to provide food service personnel with skill in preparing and serving food. This significantly improves the overall Navy Food Service Program.

Organization

The NFMTs are directly responsible to the Fleet Industrial Supply Center (FISC) for performance of their mission. The team members may be assigned for additional duty to the host command for military and administrative purposes.

Mission

The NFMTs' mission is to aid ships and ashore activities in raising the quality and standards of food service. This assistance is provided in the following manner:

- Participating in an advisory capacity in managing the local food service program by working along with food service personnel
- Demonstrating proper techniques in all phases of food service.

This includes management, production and serving of food, sanitation, training and accounting. Their training also motivates foodservice personnel toward increased efficiency and effectiveness. For further guidance on Navy Food Management Teams, refer to the P-486.

THE PROCESSES of FOODSERVICE MANAGEMENT EFFICIENCY

Whether afloat or ashore, you, as a Leading CS, will be responsible for managing many processes related to foodservice. Food service management efficiency entails giving each process related to foodservice the proper attention. You must formulate plans, coordinate the duties and supervise your personnel's work as well as assume responsibility for the results. You must get the work done by directing and controlling the activities of others so they work together efficiently.

The following are some of the processes related to foodservice that are discussed in this chapter:

- Following the basic standards of food service
- Using proper inventory control and accounting procedures
- Setting up a sanitation program that includes physical examinations, training and inspections

- Conducting routine preventive maintenance.

STANDARDS of FOODSERVICE

Quality of foodservice and customer service contributes substantially to maintaining high morale and the general welfare of Navy personnel. GM patrons are entitled to properly prepared, wholesome, well-balanced and satisfying meals served under sanitary conditions in a pleasant atmosphere. To this end, the Standards of Food Service, NAVSUPINST 4061.11 (series), outlines concrete actions that protect patron health and enhance satisfaction. They should be regarded as basic to any GM operation and serve as a guide for all GM operations.

Monitoring Food Preparation

The success or failure of a meal depends a great deal on properly timed cooking. For example, if chops or similar meats are to be served, cook only enough to get the meal started. Then continue preparing the chops during the serving, keeping just ahead of the demand. As the end of the serving line approaches, make an accurate count of how many servings will be needed to avoid preparing wasted rations.

Many items lose their taste or attractiveness if they are prepared too far in advance or in large quantities. It is good management to implement and enforce progressive cooking practices. Accurate computations on the NAVSUP Form 1090 will enable your CSs to prepare the proper amounts of food. You should keep a record of the amounts of all foods needed to serve each meal. Be sure you get a correct count on the number of people who are ashore on liberty or absent for other reasons. These records serve as a basis for more accurate future calculations.

Control and Documentation of Leftovers

The world's finest foods are provided for the Navy, but the food budget is limited. You must help keep the budget within reasonable limits. Waste increases costs. Conservation is the simplest way to keep costs under control. As the person in charge of a GM, you should make it a matter of pride to have a low record of spoilage and leftovers.

You can eliminate waste by planning your menus carefully. Remember, your past food-preparation worksheets contain information on the successes or failures of your past menus.

Note the amount left on trays and listen to the patrons' comments. If there are complaints, find out why the meal did not appeal to them.

Compliance with Recipes

All Armed Forces Recipe Service (AFRS) recipes were tested and evaluated for military-wide acceptability and to support current nutritional standards. The use of the AFRS is required and is issued to all GMs to standardize and improve food prepared and served. Standardized recipes are needed for a well-run food service operation. The success of the AFRS depends upon its careful use and attention to detail. The AFRS also is the most effective management tool you can use for guiding the requisitioning of supplies and controlling breakouts and inventories.

Food Service Suggestions

One of your responsibilities as Leading CS may be to act as the customer service representative to the FSO. In this capacity, you must be present in the mess area to answer patrons' inquiries and to receive their suggestions or comments during each meal.

A suggestion box also should be posted prominently at each exit for the convenience of the patrons. This suggestion box should have a pencil or pen attached and have Suggestion to the Food Service Officer, NAVSUP Forms 1343 (Figure 3-1), or local forms provided for customer use. You should remove suggestions daily, after the evening meal and turn them in to the FSO. The FSO should review all suggestions for possible adoption.

SUGGESTIONS TO THE FOOD SERVICE OFFICER

(sample form)

To: Food Service Officer (date) _____

I suggest consideration be given to:

_____

_____

_____

_____

_____

Optional:

Name: _____

Email Address: _____

Phone: _____

Food Service Officer Response:

_____

_____

_____

_____

_____

_____

Food Service Officer

Figure 3-1, Suggestion to the Food Service Officer, NAVSUP Form 1343.

Evaluating Food Service Evaluations

Customers submitting suggestions or comments should be treated as individuals with individual needs. Most customers experience an empty stomach three times a day. Conversely, this need is routinely filled on a more impersonal basis–the same filling for all customers. You may provide the correct service, but if you treat the customer as just one of a group, rather than as an individual, it may cause resentment. Therefore, when evaluating suggestions or comments, you should present the right attitude toward the needs of the customer. These needs may run the extent from the ridiculous, through the routine, to the very difficult. However, these categories reflect your opinion of the needs and requests–not the customer's. The problems are important to the customers; otherwise,

they would not have submitted a suggestion or comment. Thus, you should make all customers feel that their problem is important.

Regardless of the nature or seriousness of a customer's problem, certain negative factors may serve to complicate it. For example, the customer may be angry, worried, or frustrated. Possibly, the customer may be unwilling to accept anything less than his or her desired solution to the problem. Awareness of these factors allows you to approach each suggestion practically and, in turn, deal with most rational suggestions effectively.

Giving Feedback on Suggestions

The FSO should evaluate all suggestions or comments and furnish a reply when requested, within 48 hours. The Leading CS should ensure that the proper action is taken to adopt or to implement suggestions that the FSO considers favorable to improving the quality of service. Adopted suggestions should be posted twice weekly or placed in the ship or station plan of the day for the crew's convenience.

Recording Meals Consumed

There are different categories under which personnel fall when recording meal consumption. For you to account properly for all meals consumed in a GM, you must understand rations and ration entitlement. In addition, you must understand the distinction between afloat and ashore recording procedures. For further guidance concerning recording meals consumed, refer to the P-486.

LETTERS OF AUTHORITY, AUTHORIZATION AND APPOINTMENT

Letters of authority appoint personnel to act for another person or persons of higher authority. Letters of authorization permit certain functions or actions. Letters of appointment assign responsibility and authority to designated personnel to control a specific function. The Supply Officer must maintain, in the supply office, a current file of all such letters applicable to operating the supply department. The FSO should retain copies applicable to the GM should be retained by the FSO.

LETTERS of AUTHORITY—The following are letters of authority that may be required in the food service division:

- CO's letter appointing an assistant to the Supply Officer as the FSO
- CO's letter appointing the person authorized to receipt for food items in the absence of the FSO and his or her designated assistant
- Mess treasurer's letter designating a person to approve issue requests for a private mess.

LETTERS of AUTHORIZATION—The following are letters of authorization that may be required in the food service division:

- CO's letter authorizing the FSO to make necessary changes in the approved menu
- CO's letter authorizing the sale of meals from the GM on a credit basis
- CO's letter authorizing a change fund for the GM.

LETTERS of APPOINTMENT—The following are letters of appointment that may be required in the food service division:

- CO's letter appointing a control officer for the handling and security of the Cash Meal Payment Book, DD Form 1544
- FSO's letter appointing an individual to be a collection agent or authorized funds custodian
- FSO's letter designating a cashier to receive payment for meals sold from the GM.

INVENTORY CONTROL AND PHYSICAL SECURITY

Inventory procedures should contain provisions for reviewing the accuracy of inventories, actual issues and records. You should review these items as necessary to ensure the continued availability of balanced stocks.

The actual (physical) inventory of food items on board should be accurately reflected in the inventory records. Improperly kept records support practices that, without exception, will lead to inefficiency and cause losses in money and material. For further guidance concerning inventories refer to the P-486.

KEY CUSTODY and CONTROLS

Afloat Supply Procedures, NAVSUP P-485 and Food Service Management, NAVSUP P-486, describe current security information.

The basic rules set down by the NAVSUP P-485 for key security are as follows:

- Supply spaces must be kept locked when not in use
- Custody and responsibility for any space must rest with the person in charge of that space
- Permission for entry of persons not ordinarily authorized to have access must be obtained from the supply officer, FSO, or a delegated representative
- No space should be secured in such a manner that access by use of ordinary damage control equipment is hindered in an emergency
- Keys to supply space padlocks must not be taken from the ship and should be turned in to the key locker when the custodian goes ashore. Keys to GM working spaces may be passed between watch captains and not locked in the key locker
- Whenever an original or duplicate key is lost, a new lock must be placed in use
- Combinations to locks must not be recorded in writing except for a written combination in a sealed opaque envelope. This envelope must be signed over the flap by both the custodian and the accountable officer in the presence of one another and retained in the accountable officer's safe
- All key padlocks must be of 1 1/2-inch size
- All keyless padlocks used must be of the three-combination, manipulation-resistant type
- Aboard submarines, because of unique space limitations, damage control purposes and the necessity for storing material in widely separated small spaces, it is not feasible to keep all supply spaces locked. Fleet, type and local instructions make necessary provisions for appropriate deviations

- Train your personnel to lock the padlock on the staple and remove the key whenever they enter a storeroom or other locked supply department space. This procedure prevents keys from being locked in the storeroom and locks from being lost or switched by unauthorized personnel. It also prevents members from being locked in the space by a person who may think the space has been left unlocked by oversight.

LOCK GROUPINGS AFLOAT

Aboard ship, the locks of the foodservice division are integrated with those of the rest of the supply department. Locks and keys for individual spaces are grouped by the following functional areas:

Group I spaces consist of all supply department and general stores spaces, including storerooms, special lockers and related spaces.

Group II spaces consist of foodservice spaces including the galley, bake shop, bread room, vegetable preparation area, foodservice issue room, meat preparation area, refrigerated spaces and foodservice storerooms.

Group III spaces consist of the ship's retail and clothing stores, the fountain, vending machines and related bulk storerooms.

Group IV spaces consist of the ship's service activities such as the barbershop, tailor shop, dry-cleaning shop and laundry.

For all afloat groups, each lock must be opened by an original and duplicate key different from the keys to any other space. Additionally, each group must have a master and one duplicate master key capable of opening every lock in the group. Here also must be a grand master and one duplicate grand master capable of opening every lock in every group.

NOTE: Group III has special keyless padlocks that are accepted.

Afloat, accountable food items must always be kept under lock and key. The only exception is when the bulk of such material needed for a required endurance load makes storage under lock and key impractical. Storage of accountable food outside of locked and controlled storerooms should not be done without the knowledge and consent of the supply officer. Physical inability to store all items under lock and key may mitigate, but does not relieve the FSO of his or her responsibility for accountability.

LOCKS ASHORE

At ashore GMs, the locks of the food service division may or may not be integrated with other locks of the supply department. In either case, the FSO must be knowledgeable of the existence and have control over any master and duplicate master keys that can open food service spaces.

The following procedures further outline custody and handling of keys:

- No two spaces should have locks that can be opened with the same original and duplicate key except master and grand master keys
- The person in charge of the space must get the original key from the general key locker at the beginning of the day. This person must keep possession of the original key during working hours and return it to the general key locker after working hours

- The general key locker should be located in the supply office to provide centralized key control
- Duplicate keys should be kept in a duplicate key locker in the supply office or in the supply officer's safe. The supply officer may authorize a special duplicate key locker when procedures require recurring use of duplicate keys
- When these procedures do not satisfy local circumstances, the supply officer may prescribe in writing alternate procedures to ensure proper control of keys and access to spaces
- Equipment and locker keys to cabinets and small non-accountable gear storage lockers located in the common messing area are controlled as directed by the FSO
- As department head, the supply officer has overall accountability and right of access to all food service spaces. This right of access does not compromise accountability.

AUDITING ACCOUNTING RECORDS

CASH COLLECTION

The FSO is responsible for collecting required basic charges and surcharges received from the sale of meals from the GM. Additionally, he or she is responsible for depositing such funds with the disbursing officer. When wardroom members are furnished meals from the GM, whether continually or during in-port periods, the mess treasurer is responsible for the collection and reimbursement for such meals.

Receipt and Recording of Funds—The FSO designates, in writing, cashiers to receive payment for all meals sold for cash. Payment may either be received in advance through sales of meal tickets or directly from personnel as they enter the GM.

Documentation—Various forms are used to document sales of meals. Those used to classify ration entitlement and to document rations-in-kind were discussed earlier in the chapter. Discussed now are the forms used to record receipt of funds.

Cash Meal Payment Book. The Cash Meal Payment Book, DD Form 1544, is used to record meals sold for cash from a GM in the manner prescribed next (Figure 3-2).

The CO will designate a control officer for the handling and security of the DD Form 1544. The transfer control and receipt coupons (four numbered coupons per book) will be used to complete the book. Individuals authorized to receive cash meal payment books sign the transfer control and receipt no. 1 at the time of receipt. The coupon is then retained by the control officer transferring the book. Another transfer control and receipt coupon is used to return the completed book.

Cash Meal Payment Sheet. Before using this form, the Organization block is completed. It also should have all applicable charges such as food charges, surcharges, or per diem as prescribed in the NAVSUPINST 4061.9 (series).

The cashier makes sure all individuals paying cash for meals sign their names and indicate their grade. He or she should then insert the applicable charge after each signature.

A cash meal-payment sheet also may be used for periods exceeding 1 day. In this case, the cashier should fill in the first unused line with his or her signature, rate and date. Below this signature, rate and date, a double line should be drawn to separate dates.

After a payment sheet has been completed and all totals inserted, the cashier signs and inserts his or her rate and the date. The cashier then turns the sheet in to the control officer or appointed representative.

When cash is turned in to a collection agent or disbursing officer, the DD Form 1544 serial and sheet numbers are entered next to the signature of the individual turning in the cash in the Cash Receipt Book, NAVSUP Form 470. The DD Form 1544 and the Sale of General Mess Meals, NAVSUP Form 1046 (credit sales), are used to substantiate sales from the GM and the ration credit claimed.

The DD Form 1544 is audited and reconciled at the time the cash is collected by the collection agent or authorized custodian appointed to that established position by the FSO. The FSO should review the DD Form 1544 at least weekly and make sure an audit is made when the cash is collected.

CASH MEAL PAYMENT BOOK (DD FORM 1544)

CASH MEAL PAYMENT SHEET — V38012

To be completed when the government is to be reimbursed for meals furnished

ORGANIZATION OR DINING FACILITY: USS DUARTE (DDG-90)

INCLUSIVE DATES COVERED: FROM 30 OCTOBER — THROUGH 30 OCTOBER

FOOD CHARGES: B 1.45 | L 2.65 | D 2.65 | SR 2.70 | SR Other | D Other

SURCHARGES (S/C): B .40 | L .80 | D .80 | SR .90 | SR Other | D Other

PER DIEM SURCHARGE: B | L | D | B | L | D

GRADE	NAME	DOLLAR VALUE B	L	D	S/C
CIV	M. Helmes	1.20			.40
CIV	R. Ford	1.20			.40
CIV	J. Stevens	1.20			.40
CIV	D. Lamar	1.20			.40
LT	S. Gardner	1.20			.40
ENS	A. Adams	1.20			.40
CIV	T. Little	1.20			.40
ENS	W. Wilson	1.20			.40
LT	C. Waters	1.20			.40
LT	B. Michaels	1.20			.40
ENS	K. Robinson	1.20			.40
CIV	C. Crispin		2.40		.80
CIV	A. Toledo		2.40		.80
LT	J. Young		2.40		.80
CIV	L. Marks		2.40		.80
CIV	T. Brown		2.40		.80
ENS	S. Allen		2.40		.80
LT	F. Thompson		2.40		.80
TOTAL		18.20	16.80		18.00

GRADE	NAME	DOLLAR VALUE B	L	D	S/C
	BALANCE BROUGHT FORWARD	13.20	16.80		18.00
CIV	J. Williams		2.40		.80
CIV	P. Anderson		2.40		.80
CIV	R. Dixon		2.40		.80
CIV	M. Helmes		2.40		.80
CIV	S. Hughes		2.40		.80
LT	R. Walton		2.40		.80
ENS	P. Buddy		2.40		.80
CIV	W. Sims		2.40		.80
CIV	J. Henderson		2.40		.80
CIV	R. Wilson		2.40		.80
LT	P. Mickens			2.40	.80
CIV	P. Faulla			2.40	.80
TOTAL		13.20	40.80	4.80	19.60
TOTAL CHARGES				Food 58.80	S/C 19.60
CASH (OVER) (SHORT)				.05	
CASH TURNED IN				58.85	19.60

REMARKS: .05 over due to rounding

SIGNATURE OF UNIT COMMANDER OR FOOD SERVICE OFFICER: W.B. Ellis, Ens

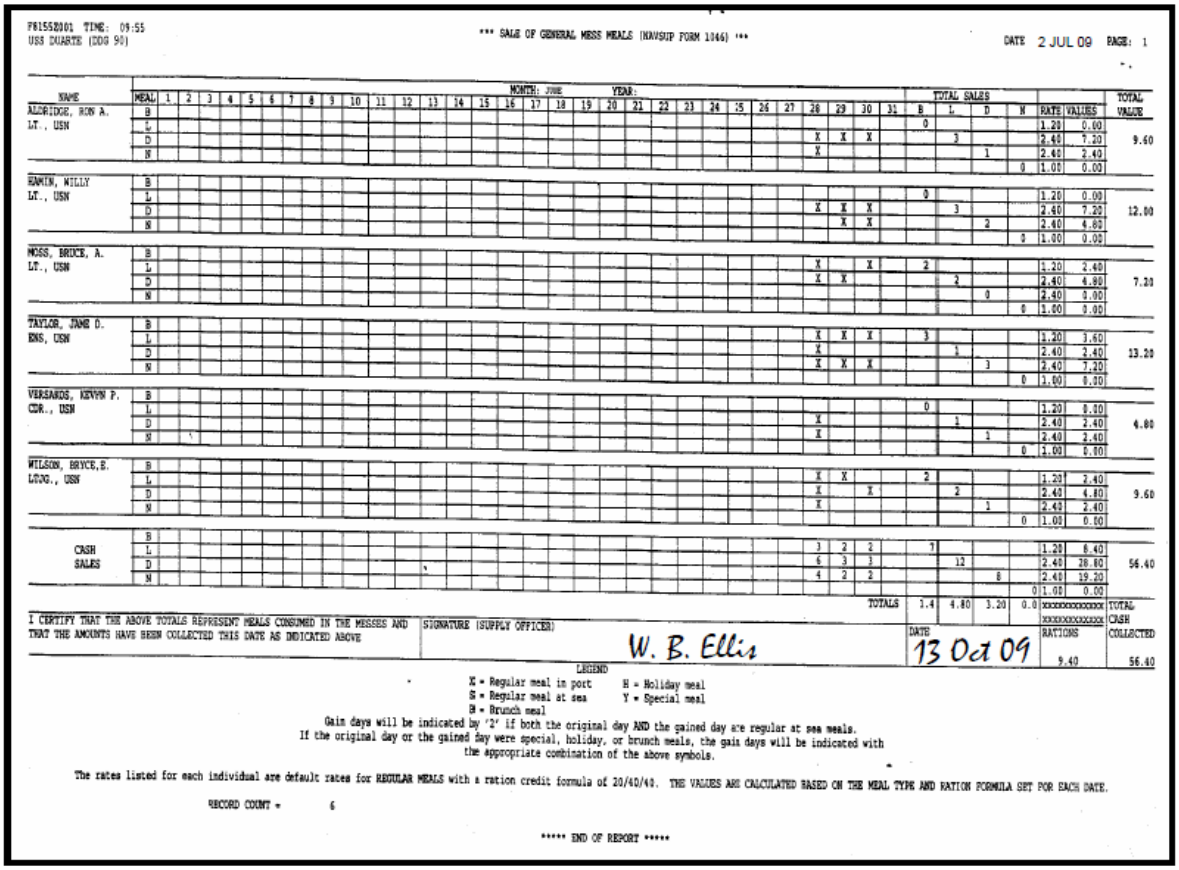
SIGNATURE OF LAST OR ONLY HEADCOUNTER: A. Samuels, EM3

SHEET 01

Figure 3-2, DD Form 1544.

Credit Sales. If the sale of meals from the GM has been authorized and is considered quite practical, the CO may authorize the sale of meals on a credit basis. This authorization is for officers, enlisted and other categories subsisting daily.

- When meals are sold on a credit basis, the Sale of General Mess Meals, NAVSUP Form 1046 will be used. Figure 3-3 is used to record these credit sales in the following manner:
- When the CO determines that it is impractical and uneconomical to subsist a small number of officers in the established wardroom during in-port periods, weekends and holidays, he or she may authorize officers to purchase meals from the GM
- At the option of the CO, a GM CS may be assigned the duty of maintaining the NAVSUP Form 1046. The CS should place a check mark or maintain a running total in the appropriate block opposite each name to show consumption of a meal. The form should be posted in a noticeable location where it can be seen by the wardroom mess members. At the end of each month, each mess member signs in the Name block to acknowledge approval of the meal tally
- The payment for all meals sold on a credit basis is required no later than 15 days following the month in which the meals were sold. Individuals concerned should make payment before detachment. The FSO furnishes a receipt for the cash paid. The Cash Receipt Certificate, NAVCOMPT Form 2114, may be used as a receipt form. This is done by marking out the line "for which I hold myself accountable to the Treasurer of the United States of America."



F81552001 TIME: 09:55
USS DUARTE (DDG 90)

*** SALE OF GENERAL MESS MEALS (NAVSUP FORM 1046) ***

DATE 2 JUL 09 PAGE: 1

MONTH: JUNE YEAR:

NAME	MEAL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	TOTAL SALES B	L	D	N	RATE	VALUES	TOTAL VALUE
ALDRIDGE, RON A. LT., USN	B																																0				1.20	0.00	
	L																																				2.40	7.20	9.60
	D																												X	X	X			3			2.40		
	N																												X						1		2.40	2.40	
																																				0	1.00	0.00	
HAMLIN, WILLY LT., USN	B																																0				1.20	0.00	
	L																																				2.40	7.20	12.00
	D																												X	X	X			3			2.40		
	N																													X	X					2		2.40	4.80	
																																				0	1.00	0.00	
MOSS, BRUCE, A. LT., USN	B																																				1.20	2.40	
	L																												X		X		2				2.40	4.80	7.20
	D																												X	X				2			2.40		
	N																																			0	2.40	0.00	
																																				0	1.00	0.00	
TAYLOR, JANE O. ENS, USN	B																																				1.20	3.60	
	L																												X	X	X		3				2.40	3.40	13.20
	D																												X					1			2.40		
	N																												X	X	X				3		2.40	7.20	
																																				0	1.00	0.00	
VERSANOS, KEVIN P. CDR., USN	B																																0				1.20	0.00	
	L																																				2.40	2.40	4.80
	D																												X					1			2.40		
	N																												X						1		2.40	2.40	
																																				0	1.00	0.00	
WILSON, BRYCE, E. LTJG., USN	B																																				1.20	2.40	
	L																												X	X			2				2.40	4.80	9.60
	D																												X		X			2			2.40		
	N																												X						1		2.40	2.40	
																																				0	1.00	0.00	
CASH SALES	B																																3	2	2		1.20	6.40	
	L																																6	3	3		2.40	20.80	56.40
	D																																	12			2.40		
	N																																4	2	2		2.40	19.20	
																																				0	1.00	0.00	
																																	TOTALS	1.4	4.80	3.20	0.0	XXXXXXXXXX	TOTAL
																																					XXXXXXXXXX	CASH
																																					RATIONS	COLLECTED
																																					9.40	56.40

I CERTIFY THAT THE ABOVE TOTALS REPRESENT MEALS CONSUMED IN THE MESSES AND THAT THE AMOUNTS HAVE BEEN COLLECTED THIS DATE AS INDICATED ABOVE

SIGNATURE (SUPPLY OFFICER) W. B. Ellis DATE 13 Oct 09

LEGEND

X = Regular meal in port H = Holiday meal
S = Regular meal at sea Y = Special meal
B = Brunch meal

Gain days will be indicated by '2' if both the original day AND the gained day are regular at sea meals.
If the original day or the gained day were special, holiday, or brunch meals, the gain days will be indicated with the appropriate combination of the above symbols.

The rates listed for each individual are default rates for REGULAR MEALS with a ration credit formula of 20/40/40. THE VALUES ARE CALCULATED BASED ON THE MEAL TYPE AND RATION FORMULA SET FOR EACH DATE.

RECORD COUNT = 6

***** END OF REPORT *****

Figure 3-3, Explanation of the Sale of General Mess Meals, NAVSUP Form 1046.

ACCOUNTABILITY FILE

The FSO must maintain files of accounting records and substantiating documents required for audit of subsistence, supply and GM operations. Records and documents must be retained and disposed of according to Navy and Marine Corps Records Disposition Manual, SECNAVINST 5210.8 (series). See also the NAVSUP P-486.

RESPONSIBILITY—The accountability file must be established by the FSO on the first day of the accounting period.

SECURITY—The accountability file must be kept under lock and key by the accountable officer to maintain security of all accountable transactions and substantiating accountable documents.

FOOD SERVICE MANAGEMENT (FSM) SYSTEM

FSM SECURITY. The FSM System has a resident security program built into the database. The use of other security programs may damage or impede the operation and restoration of the FSM database. Therefore, the use of other security programs is NOT authorized.

Below is a listing of the screens in the FSM Security Module. The Display Module (7) and the Print Module (8) have no security access needed, since any user allowed access to FSM has unlimited access to the Display and Print Modules.

SYSTEM DIRECTORY MODULES

1. FILE MANAGEMENT MODULE

FOOD ITEMS

SHIP/ACTIVITY CONSTANTS INFORMATION

RATION CREDIT FORMULA

SPECIAL DAILY FOOD ALLOWANCE STATUS

HEADCOUNTS AND CASH SALES

SURCHARGES

SUPPLIERS

UNSATISFACTORY MATERIAL REPORTS

MAINTAIN DOD STUDENT MEAL PERCENTAGE SETTINGS

2. INVENTORY MODULE

REQUISITIONS/PURCHASES

RECEIPTS

EXPENDITURES

NAVSUP P-486 - Food Service Management

NAVSUP FORM 1336

RETURN OF ALL AUTHORIZED MESS ISSUES

PHYSICAL INVENTORY

NAVSUP FORM 335

BILLING REPORT

CLOSE OUT

3. MENU PRODUCTION MODULE

BREAKOUTS

RECIPES

MENUS

EDIBLE PORTION/AS PURCHASED WEIGHTS

4. ACCOUNTING MODULE

GENERAL MESS CONTROL RECORD (NAVSUP 338)

RECAPITULATION OF MEAL RECORD (NAVSUP 1292)

REQUISITION LOG (NAVSUP 1336)

RECORD OF RECEIPTS AND EXPENDITURES (NAVSUP 367)

EXPENDITURE LOG (LOSS WITHOUT SURVEY) (NAVSUP 1334)

DEPOSITS

SALE OF GENERAL MESS MEALS (NAVSUP FORM 1046)

GENERAL MESS SUMMARY DOCUMENT (NAVSUP FORM 1359)

5. SECURITY MODULE (Only FSO has access)

SYSTEM ACCESS

6. AUTOMATED DATA TRANSFER MODULE

AUTOMATED DATA TRANSFER MODULE ACCESS

GENERATE AUTOMATED RETURNS DISKETTE

GENERATE SUPPLY ACTIVITY DISKETTE

GENERATE PRIME VENDOR ORDER DISKETTE

GENERATE INSIGHT TRANSACTION FILE

GENERATE INVENTORY EXTRACT LISTING

GENERATE BREAKOUT FILE FOR MOBILE DEVICE

9. UTILITY MODULE

USERS' REFERENCE GUIDE

NAVSUP P-486—Food Service Management

BACK-UP/RESTORE PROCEDURES

INTERNATIONAL DATE LINE CROSSING

HARDWARE CONFIGURATION

VALIDATION MAINTENANCE

PROCESS NAVSUP DISKETTE

RECIPE/FOOD ITEM INTEGRITY

PROCESS PRIME VENDOR CATALOG DISKETTE

PRIME VENDOR MAINTENANCE

RATION CREDIT FORMULA MAINTENANCE

MAINTAIN DOD STUDENT MEAL PERCENTAGES

FSM SYSTEM ACCESS RIGHTS

Supply Officer/Food Service Officer.—The Food Service Officer or the Supply Officer, when the Supply Officer and FSO are the same person, will have unrestricted access to all areas within the FSM System.

Leading Culinary Specialist & General Mess Recordskeeper —The Leading CS and GM Recordskeeper should have unrestricted access to all areas within the FSM System with the exception of the System Access function inside of the Security Module and the Hardware Configuration function inside of the Utility Module.

Cash Collection Agent & Back-up Recordskeeper —The Cash Collection Agent should have access to the Deposits function inside of the Accounting Module only. The back-up Recordskeeper should have the same access rights as the General Mess Recordskeeper listed above. In no case will the Cash Collection Agent have direct access to general mess records or be assigned as the back-up Recordskeeper. In some cases on small ships and submarines only, it may be impossible to separate those duties; this will be the only authorized exception.

NOTE: When on small ships and submarines Cash Collection Agent and the back-up Recordskeeper is the same person. Food Service Officers must monitor their records very closely due to the perceived conflict of interest.

General Mess Watch Captains, Bulk Storeroom Custodian & all Others. —The Watch Captains, Bulk Storeroom Custodian and all others should have very restricted access to the FSM System. To allow them into the Display Module, Print Module and Menu Production Module only, the FSO must allow them to have a User ID and Password. Once the User ID and Password are established in the FSM system do not give them any other System Access Rights.

The FSO will prepare an instruction to food service personnel covering the operation of the FSM computer and security. Due to unique operating and manning conditions at some activities, FSO's should adjust the degree of access, using good judgment, while maintaining the FSO's accountability. Under no circumstances will the FSO give anyone access to the "Security Module" in FSM.

Preparing for emergency FSM access situations, the FSO will record his/her system access ID and password on paper and place it in a sealed envelope signing his/her name over the seal of the envelope. This envelope will be kept in the Supply Officer's safe and will be accessed only during emergency situations. If the FSO and Supply Officer are one and the same, the envelope will be secured in the Executive Officer's safe. If the FSO's system access ID and password are not documented properly or forgotten, contact the Type Commander (TYCOM), Navy Food Management Team (NFMT), or Space and Warfare Systems Center for access.

Upon successful activation of the FSO's ID and password, the FSO will delete the SPAWARSYSCEN'S ID and password.

MESS DECK MASTER-AT-ARMS—The Mess Deck Master-at-Arms serves as the command's official host to the patrons of the food service facility. You are directly responsible to the food service officer or a designated representative who normally is the leading culinary specialist. Your duties and responsibilities are as follows:

- In charge of all spaces and equipment in the dining area, serving line, scullery and waste handling areas, except the equipment or areas under the cognizance of the leading culinary specialist
- In coordination with the leading culinary specialist, assign food service attendants to the service of food, maintenance and cleanliness of the dining area and equipment, operation of the scullery and handling and disposal of food waste
- Muster food service attendants daily and thoroughly inspect for personal neatness and cleanliness
- Supervise the cleaning of the dining area, serving line, scullery, dinnerware and silverware
- Ensure that all assigned equipment is operated in accordance with current instructions
- Inventory (conduct bi-monthly inventory) and maintain adequate dinnerware and silverware to ensure that sufficient quantities will be available throughout the serving period
- In conjunction with the medical department, administer a training program to food service attendants in sanitation, scullery operation and food handling
- Maintain order and discipline in assigned areas. Ashore, your duties will be slightly different and will be covered more specifically in Section 2.

ACCOUNTING

GENERAL MESS ACCOUNTING SYSTEMS

All GMs use an end-use accounting procedure, whereby activities may account for receipts and expenditures of items under the appropriation Operation and Maintenance, Navy (O&MN). Returns are also prepared for periods when a GM is closed. Food items are received and stocked primarily to be consumed by the reporting activity. Under this authority, a GM uses the, General Mess Summary Document NAVSUP Form 1359.

Monetary Allowances

Economic factors invariably concern all menu planners. GMs are operated on a monetary ration allowance. The Naval Supply Command (NAVSUP) publishes a 7330 price list quarterly. This is used in pricing food items issued to the messes and in the monetary values of the basic daily allowance, supplementary allowances and special allowances. The value of the basic allowance is developed from the standard Department of Defense (DOD) Food Cost Index that contains a representative list of specific quantities of food items derived from the Navy Ration Law and the current Defense Personnel Support Center Price List. The basic daily food allowance is sufficient to feed a full daily ration under normal operating conditions. It is expected that, with proper management, an under-expenditure will exist at the end of the accounting period. This requires effective menu planning, control of issues, correct inventory procedures, food conservation programs and a daily review of ration costs.

BASIC DAILY FOOD ALLOWANCE. The Basic Daily Food Allowance (BDFA) is a set quantity of food required to provide a nutritionally adequate daily diet for one person and can be defined by components or monetary value.

The monetary value of a BDFA is developed from the standard DOD Cost Index. The authority for this index stems from a presidential executive order and the current DOD appropriation act. The quarterly NAVSUPNOTE 7330 (series) issues the BDFA monetary value and includes changes in Special Allowances, fixed price list for operational rations, Food Item Report Master/Food Code List (NAVSUP Form 1059) and general information on food items. Except for operational rations all food items will be charged at the last receipt price.

PREPARATION of the GENERAL MESS SUMMARY DOCUMENT

The NAVSUP Form 1359 is the principal food service report and is submitted at the end of each month accounting period. This form is prepared in an original and two copies. The original and one copy are forwarded to the NAVSUP by the 5th day following the end of the accounting period and one copy is retained by the Food Service Officer (FSO). For more information on the preparation of the NAVSUP Form 1359, refer to the NAVSUP Publication 486, Chapter 7, Para 7003.

RELIEF of the ACCOUNTABLE FOOD SERVICE OFFICER

Upon relief of the FSO, an inventory is taken by both the relieved and relieving officers and the stock records are balanced but not closed out. A copy of the relieving inventory is forwarded to NAVSUP immediately after completion. NAVSUP audits the relieving inventory and verifies FSO accountability. The accounts receivable of the relieved officer are transferred to the relieving officer. The relieving officer receipts for the monetary value of the inventory and submits returns at the end of the regular quarterly accounting period. If the relieving officer is not satisfied that accountability is within

the prescribed limits according to the NAVSUP P-486, the CO may direct the officer being relieved to close the records and submit a return for his or her period of accountability, which is usually a fractional period of the regular monthly accounting period. The relieving officer then renders a return for the remainder of the accounting period. This is the only situation when a fractional return is required upon the relief of an accountable FSO.

DELAY and DELINQUENCY

When returns cannot be submitted on or before the date on which they are required to be submitted, the following needs to occur: A letter or message from the CO explaining the reason for the delay and the anticipated mailing date is to be forwarded to NAVSUP before the normal submission date. A copy of the letter is forwarded to the administrative/area/Type Commander via the military chain of command.

TEMPORARY CLOSURE

When it is anticipated that a Navy GM will be temporarily closed or in an inactive status (for more than 30 days) for overhaul, remodeling, or renovation, a SALTS/e-mail message must be forwarded to NAVSUP 51 via the Type Commander (TYCOM).

FINAL RETURNS

Upon notification of decommissioning/disestablishment requisitions for replenishment will be adjusted for acquisition of only essential food items required for the duration of active status. Notification letter must be sent to NAVSUP 51, via the TYCOM electronically scanned and sent by e-mail FSMRENAVSUPHQ@navy.mil to ensure that the next submission of the NAVSUP Form 1359 is recorded as the final return.

END-OF-YEAR CHECKLIST

FISCAL YEAR CLOSEOUT

At the end of the fiscal year end and immediately following, there are many things to remember to ensure a smooth closeout of one fiscal year and the opening of another. The following is a list of important issues that a manager of the General Mess will need to look at for the smooth and efficient operation of the GM:

- Has the GM received the 1st quarter NAVSUPNOTE 7330, which contains the annual instructions for Fiscal Year (FY) End Accounting Procedures for deposit of cash. it also contains the Authorization to Obligate Subsistence-in-Kind (SIK) Funds for the new Fiscal Year along with associated accounting classifications
- Has the GM completed an over issue package, if an over issue status exists at the end of the FY in accordance with P-486 para. 7302
- Has the GM received and implemented into FSM the new Prime Vendor surcharge rates
- Have the year-end close out deposits been forwarded to NAVSUP? The Sale of Meal Rates is released annually each December by NAVSUP51 and must be implemented by 01 January of the next year?

RETENTION OF RECORDS AND DOCUMENTS

The FSO maintains files of accounting records and substantiating documents required for audits of subsistence, supply and GM operation. Records and documents should be retained and disposed of according to the Navy and Marine Corps Records Disposition Manual, SECNAVINST 5212.5 (series).

The following is a list of these forms:

- NAVSUP Form 1359 GM Summary Document. Retain for current and previous twenty four months
- NAVSUP Form 338 GM Control Record. Retain for current and previous twenty four months
- NAVSUP Form 1336 Requisition Log. Retain for current and previous twenty-four months
- Receipt Documents STORES/VENDORS. Retain for current and previous 24 months
- NAVSUP Form 367 Record of Receipts and Expenditures. Retain for current and previous 24 months
- DD Form 1155. Order for Supplies or Services/Request. Retain for current and previous 24 months
- SF 30 Amendment of Solicitation/Modification of Contract. Retain as applicable when used in conjunction with the DD Form 1155
- DD Form 1149 Requisition and Invoice/Shipping Doc. Retain for current and previous 24 months
- DD Form 200 Financial Liability Retain Property Loss Investigation for current and previous 24 months
- NAVSUP Form 1334 Expenditure Log. Retain for current and previous 24 months
- NAVSUP Form 1046 Meals Sold on a Credit Basis. Retain for current and previous 24 months
- DD Form 1544 Cash Meal Payment Book. Retain for current and previous 24 months
- DD Form 1544e (Navy CAC card system). Retain for current and previous 24 months
- NAVSUP Form 470 Cash Receipt Book. Retain for current and previous 24 months
- Supporting Documents Official Letters, Naval Messages, Funding Documents, Food Flashes, 476, Certification Letters Retain for current and previous 24 months Midshipman Orders Midshipman Orders. Retain for the current and previous 12 months only
- NAVSUP Form 1059 Smooth Inventory Sheets. Retain for the current and previous 12 months
- NAVSUP Form 1059 Stores Consumed. Retain for the current and previous 12 months
- DD Form 1608 Unsatisfactory Material Report- As Applicable. Retain for the current and previous 12 months
- SF 364 Report of Discrepancy as Applicable. Retain for the current and previous 12 months

- Five per cent Expenditure Listing As Applicable. Retain for the current and previous 12 months
- Post-Daily NAVSUP Form 1282 (All GMs) Issue documents supporting issues to the general mess. Retain for the current and previous three months
- NAVSUP Form 1282 Pre-Daily Food-Item Request/Issue Document discarded after FSO verifies correct against the post-daily 1282
- NAVSUP Form 1090 Food-Preparation Worksheet. Retain for the current and previous three months
- NAVSUP Form 1292 Monthly Recapitulation of Meal Record (Ashore only). Retained Ashore only
- NAVSUP Form 1291 Meal Signature Record (Ashore only). Retained Ashore Only.

SUMMARY

In this chapter, we identified the duties and responsibilities of the FSO and the Leading CS. We also identified the necessary letters of authority, appointment and authorization; we discussed the organizational and planning policies and The NFMT assistance. Last, we discussed the different areas of FSM and the importance of each module.

CHAPTER 4

RECEIPT, INSPECTION, EXPENDITURE and STORAGE of FOOD ITEMS

Learning Objectives: Upon completion of this chapter, you should be able to do the following:

—Determine the proper way to receive food items including: safety, inspection and discrepancies.

—Determine the correct posting and distributing receipts from navy and commercial sources.

—Understand the principles of food storage for safety, perishable and semi-perishable food items.

—Understand how to properly maintain and clean refrigeration units.

—Understand how to properly prepare, issue, transfer and post expenditures.

—Understand the requirements and types of inventories.

INTRODUCTION

As a Culinary Specialist (CS), you may be assigned as the subsistence bulk storeroom custodian, responsible for the proper receipt and storage of food items and making breakouts to the General Mess (GM), Officers' Mess and Chief Petty Officers' Mess. It is also your responsibility to keep these spaces clean, safe and orderly and to keep the Leading Culinary Specialist (LCS) up to date on stock levels.

RECEIPTS, INSPECTIONS AND STORAGE

EQUIPMENT, PERSONNEL and STORAGE FACILITIES

Limited storage space, especially on small craft deployed on long cruises, prevents the use of many perishable food items. Menus for these activities should plan to use custom foods extensively to take best advantage of available storage space. Menus for such cruises should be planned well in advance to assure balanced stocks that will enable you to prepare nutritious meals.

The choice of preparation of foods to be served will also depend upon the galley equipment, the number of personnel to be fed and the number of CSs on duty.

Menus may be more elaborate if laborsaving equipment is available and a sufficient number of CSs are on duty to allow for the preparation of last-minute items. In summary, determining the choice of menu items should include the following considerations:

- The type and capacity of the galley equipment
- The number of personnel to be fed
- The number of workers in the galley.

Avoid menus that require too much last-minute preparation. Plan a balance between the foods that can be prepared in advance without deteriorating in quality and those that must be prepared just before serving time.

RECEIPT

Deliveries can usually be anticipated because of shipment notices, delivery dates on requisitions, or other notifications and preparations should consequently be made to receive the material. Receiving personnel should be ready to inspect the material, storerooms should be ready to receive the material and the necessary arrangements for working parties should be made well in advance so that once the anticipated material arrives, it may be stored immediately to prevent temperature fluctuations. Such fluctuations will reduce the quality and storage life of food items.

Subsistence items received aboard a ship or shore activity are accompanied by a variety of receipt documents depending upon the method of request and the issuing activity. Certain certifications are common to all receipt documents. Receiving personnel must do the following:

- Inventory all food items
- Circle the quantity accepted
- Date the document upon receipt
- Have items of questionable quality inspected by a medical representative
- Sign the document to indicate receipt.
- Unload Shipment

Always remember that safety, sanitation and security of food items should not be compromised when unloading and loading stores. Careful planning and preparation will minimize, if not prevent, this problem. Receiving procedures will be issued and routes established. This will facilitate unloading and loading stores and definitely eliminate wandering food items that could be lost or stolen.

Working parties should be requested well in advance and requirements are established from each department. Get the request for working parties and requirement lists including the day of delivery published in the plan of the day a few days before the day of delivery. When there are a sufficient number of personnel from other departments, use supply personnel as checkers, spotters and supervisors to the greatest extent possible.

Unload and load as fast as possible to avoid prolonged exposure to less than ideal temperatures and to not diminish the average shelf life of food items and to prevent spoilage.

SAFETY

All personnel involved in receiving and storing food items must receive instructions on the following safety precautions:

- The proper method of lifting heavy objects
- The wearing of protective hats, safety shoes and gloves
- The operation of materials-handling equipment such as forklifts, pallet jacks and portable conveyors
- The removal of hatch covers and ladders.

DESIGNATED RECEIVER

When food items are received, the Food Service Officer (FSO) or a designated representative inspects the food items to verify the exact quantity received and signs the receiving documents to acknowledge receipt.

CUSTODY

The bulk storeroom custodian having custody of the food items delivered accepts responsibility by signing a statement on the invoice that normally reads, "I accept responsibility for these items and hold myself accountable to the United States Government."

DATE STAMPING

Food items must be date-stamped to make sure the oldest stock is used first.

INSPECTION

Regardless of the source from which food items are obtained and regardless of any prior inspection, it may be your responsibility to inspect them as they arrive to determine that the specified quantities have been received.

Receipt and Inspection Procedures for Subsistence Prime Vendor

The FSO is responsible for the receipt, identification and inspection of all incoming subsistence items. All food items will be inspected at destination for conformance to all terms and conditions quoted or referred to in the contract. These terms will include, but are not limited to, count, condition and identity. Under ordinary circumstances, deviations from the terms and conditions of the contract are not permitted. However, deviations may be allowed when approved prior to delivery by the FSO. Substitutions for ordered items are not permitted. When orders call for specific grade, type, or quality of food products, only the specified items will be accepted upon delivery. Food items will not be accepted if deviations or substitutions have been made, even if offered at reduced prices, unless approved by the FSO. The FSO or designated representative will inspect supplies as promptly as is practicable after delivery. Failure to promptly inspect or accept supplies does not relieve the contractor from responsibility or impose liability on any one of the ordering facilities for non-conforming supplies.

Food items will be inspected to ensure that the product is the item, type, style and grade as ordered. Receipt inspectors will be familiar with contractual labeling requirements and thoroughly trained to determine shelf-life requirements and shelf-life remaining at receipt. All perishable products will have an "open coded" Date of Pack (DOP) and an open coded "Use by Date," "Best If Used By Date," "Sell By Date" or similar marking indicating the end of the guaranteed freshness date. The Subsistence Prime Vendor will deliver the freshest food possible, but as a minimum will comply with the contractual shelf life requirements. To obtain a copy of the applicable contractual requirements in your area, contact your local Navy Food Management Team (NFMT) or local Fleet Industrial Support Center (FISC). Products offered by the Subsistence Prime Vendor are required to ensure the freshest available products are offered and are within the manufacturer's established shelf life. Refer to your specific contract requirements to determine requirements. For ashore activities the Subsistence Prime Vendor is only required to deliver the freshest food possible.

For more information on receipt procedures refer to NAVSUP 486.

Inspection of Food Items Received from Naval Sources and Other Government Agencies

An ashore supply activity will perform a quality inspection of food items upon acceptance from the original supplier. This inspection should be done according to NAVSUPINST 4355.4 (series) and should make sure the food items conform to the specifications included in the purchase document. Such inspection will not be duplicated aboard ship. Before storing, the receiving individual will coordinate inspection procedures to detect any deterioration, contamination, or infestation that may have occurred since the quality inspection at the supply activity. Contaminated or infested foods received via underway replenishment should be immediately separated and disposed of according to the NAVSUP P-486. Government-owned subsistence items received in usable condition but unfit for storage should be used promptly and any loss surveyed.

Inspection of Food Items Received From Commercial Sources Other than Prime Vendor

Subsistence items received from commercial vendors will originate from an approved source. All food items will be inspected at destination for conformance to all terms and conditions quoted or referred to in the contract or purchase order. These terms will include, but are limited to, count, condition and identity. Under ordinary circumstances, deviations from the terms and conditions of the contract or purchase order are not permitted. However, deviations may be allowed when necessary due to lack of time or other extenuating circumstances. Substitutions of food items shown on contracts or purchase orders are not permitted. When contracts or purchase orders call for specific grade, type, or quality of food products, only the specified items will be accepted upon delivery. Food items will not be accepted if deviations or substitutions have been made, even if offered at reduced prices, unless they are urgently needed. If food items are urgently needed and therefore accepted at a reduced price, a modification to the contract or purchase order, Standard Form 30, is required.

For more information on Standard Form 30 refer to NAVSUP 486.

Inspection by the Medical Department

When OCONUS, a designated representative of the medical department will perform a fitness-for-human-consumption inspection upon receipt of food items. The receipt document showing that a fitness-for-human-consumption inspection has been performed should be signed by the medical representative. Suspected items in which there is doubt as to fitness are not accepted and are referred to a local Army Veterinarian (AVI) or Environmental Preventive Medicine Unit (EPMU) for analysis.

Unsatisfactory Food Items

The subsistence supply system has quality assurance provisions designed to guarantee the receipt of wholesome, satisfactory food products. However, the system does experience breakdowns in specification standards and are allowing some unsatisfactory products to filter into the supply pipeline.

NONHAZARDOUS—These food items do not meet expected or desired standards, but do not constitute a health hazard to personnel if consumed. A good example of this would be chicken wings in a box labeled breasts.

HAZARDOUS—These food items would possibly cause, or are suspected to have already caused, harm after being consumed. Determination of fitness for human consumption is the responsibility of the medical officer. Examples of hazardous food item characteristics are widespread presence

of swollen or leaking cans and products with either offensive or unusual odors and either offensive or unusual odors or colors or any other evidence of deterioration.

Refer to the NAVSUP P-486 for more information regarding the reporting and handling of non-hazardous and hazardous food items.

DISCREPANCIES in SHIPMENTS from PRIME VENDOR

Any changes in quantity received, line out the incorrect quantity, initial the correction, annotate and circle the actual quantity received and the reason for the change, i.e., rejected, missing, substitution. The Subsistence Prime Vendor representative/driver must initial all corrections.

If the Prime Vendor discrepancy is detected after receipt or has latent of hidden defects The FSO must request inspection by Army Veterinary personnel, when available, or Primary Medical Authority (PMA) for product found to be defective after the initial delivery. The AVI or PMA will substantiate the existence of hidden or latent defects and determine if the items are fit for human consumption.

Ashore General Messes. Contact the Subsistence Prime Vendor/DSCP Account Manager and Regional Representative to arrange for return of the items for replacement. Consult with the supporting AVI representative to determine that appropriate local health authorities have been notified of confirmed wholesomeness problems.

Afloat Units In Port. Contact the TYCOM and FISC to arrange for return of the items for replacement. Consult with the supporting AVI representative to determine that appropriate local health authorities have been notified of confirmed wholesomeness problems.

Afloat Units Underway. Items inspected by PMA and found to be non-hazardous must be kept onboard until the ship is back to its homeport and items can be returned to the vendor for a replacement. However, if the storage capacity does not permit such action to be taken, these items must be surveyed. If surveyed obtain pictures if possible of the item, a certificate of unfitness for human consumption from the medical department and submit a copy of the survey form with the Report of Discrepancy (SF 364) to DSCP via TYCOM and NAVSUP 51 for credit resolution.

For more information on receipt procedures refer to NAVSUP 486.

DISCREPANCIES in SHIPMENT from a GOVERNMENT SOURCE OTHER THAN PRIME VENDOR

It is always possible that several discrepancies can occur during shipment and receipt. All of these can be discovered during careful inspection and verification of receipts. The following actions will be taken when these discrepancies are found:

Shortages in Shipment— A shortage occurs when the quantity received is less than the quantity shown on the receipt, regardless of the quantity on the original requisition. If a shortage exists, contact the issuer or shipper, either in person or by message, to try to resolve the discrepancy. Refer to NAVSUPINST 4440.179 for further guidance. Shortages due to transportation discrepancies will be reported according to NAVSUPINST 4610.33. Receiving activities will notify the supply/transportation officer of all transportation discrepancies upon their discovery. For all types of discrepancies, the receipt inspector and the bulk storeroom custodian will indicate on the receipt document the actual quantity physically received by drawing a single line through the invoice quantity and

recording and circling the actual quantity. Both will then sign and date the receipt documents (See figures 4-1). Forward the documents to the FSO.

When substantial shortages are found in shipments received from Navy supply activities (Navy Supply Centers [NSCs] or Navy Supply Depots [NSDs]) or combat logistics force ships (AFSs, AFs or AORs), you should immediately contact the issuer/shipper in person or by message to resolve the discrepancies. In the event shortages do exist after investigation, the full quantity and dollar value of the invoice will be posted to the Subsistence Ledger, NAVSUP Form 335; the Record of Receipts and Expenditures, NAVSUP Form 367; and the Requisition Log, NAVSUP Form 1336. The quantity and dollar value of the loss of $50 or more per line item will also be posted to the records according to the survey procedures found in the NAVSUP P-486. Losses of less than $50 per line item will be documented as a loss without survey.

Overages in Shipment—An overage occurs when the quantity physically received exceeds the quantity stated on the receipt document regardless of the quantity on the original requisition or purchase order. When this occurs, immediate liaison is to be established with the issuer to resolve the discrepancies (See figures 4-2).

Overages From a Navy Source.— When discrepancies from a Navy source are not resolved, the receipt inspector and Bulk Storeroom Custodian should indicate the actual quantity physically received on the receipt document by drawing a single line through the invoiced quantity. Then both sign and date the receipt document. See Figure 4-2. Forward this document to the FSO. A dummy receipt document should then be prepared to document the excess quantity received. This dummy receipt document can be a DOD Single Line Item Release/Receipt Document, DD Form1348-1, or a Requisition and Invoice Shipping Document, DD Form 1149. See Figures 4-3 and 4-4 for examples of these documents. In addition, mark on the document Dummy Invoice to Cover Excess Shipment to distinguish the dummy invoice from a normal receipt.

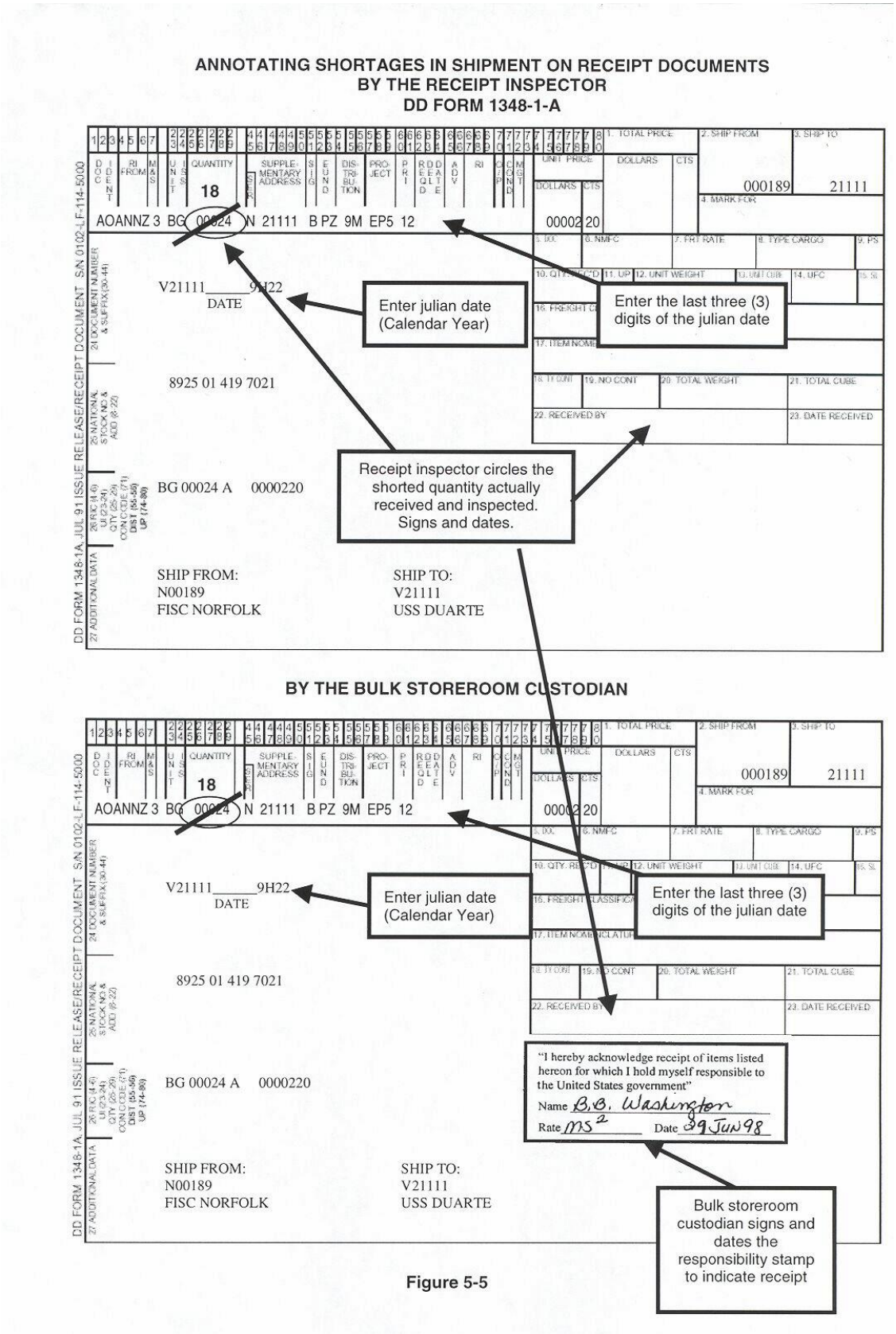

ANNOTATING SHORTAGES IN SHIPMENT ON RECEIPT DOCUMENTS
BY THE RECEIPT INSPECTOR
DD FORM 1348-1-A
AOANNZ 3 BG 00024 N 21111 B PZ 9M EP5 12
18
V21111_____9H22
DATE
Enter julian date (Calendar Year)
Enter the last three (3) digits of the julian date
8925 01 419 7021
BG 00024 A 0000220
Receipt inspector circles the shorted quantity actually received and inspected. Signs and dates.
SHIP FROM:
N00189
FISC NORFOLK
SHIP TO:
V21111
USS DUARTE
DD FORM 1348-1A, JUL 91 ISSUE RELEASE/RECEIPT DOCUMENT S/N 0102-LF-114-5000
BY THE BULK STOREROOM CUSTODIAN
"I hereby acknowledge receipt of items listed hereon for which I hold myself responsible to the United States government"
Name B.B. Washington
Rate MS2 Date 29 JUN 98
Bulk storeroom custodian signs and dates the responsibility stamp to indicate receipt
Figure 5-5

Figure 4-1, Annotating Shortages in Shipment Document, DD Form 1348-1.

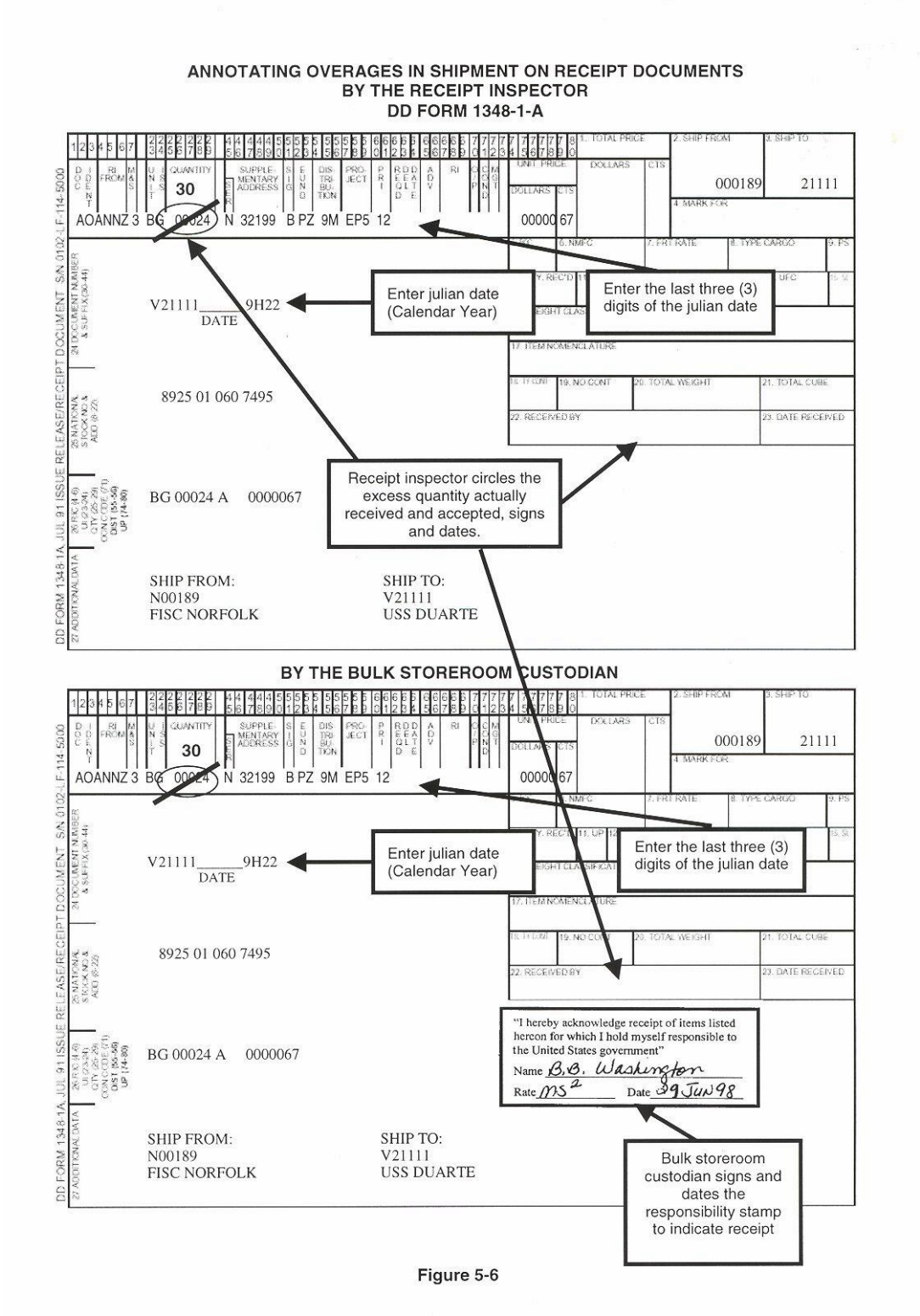

ANNOTATING OVERAGES IN SHIPMENT ON RECEIPT DOCUMENTS
BY THE RECEIPT INSPECTOR
DD FORM 1348-1-A
QUANTITY
30
AOANNZ 3 BG 00024 N 32199 B PZ 9M EP5 12
000189
21111
0000067
V21111_____9H22
DATE
Enter julian date (Calendar Year)
Enter the last three (3) digits of the julian date
8925 01 060 7495
BG 00024 A 0000067
Receipt inspector circles the excess quantity actually received and accepted, signs and dates.
SHIP FROM:
N00189
FISC NORFOLK
SHIP TO:
V21111
USS DUARTE
BY THE BULK STOREROOM CUSTODIAN
"I hereby acknowledge receipt of items listed hereon for which I hold myself responsible to the United States government"
Name B.B. Washington
Rate MS2 Date 29 JUN 98
Bulk storeroom custodian signs and dates the responsibility stamp to indicate receipt

Figure 5-6

Figure 4-2, Annotating Overages in Shipment Document, DD Form 1348-1.

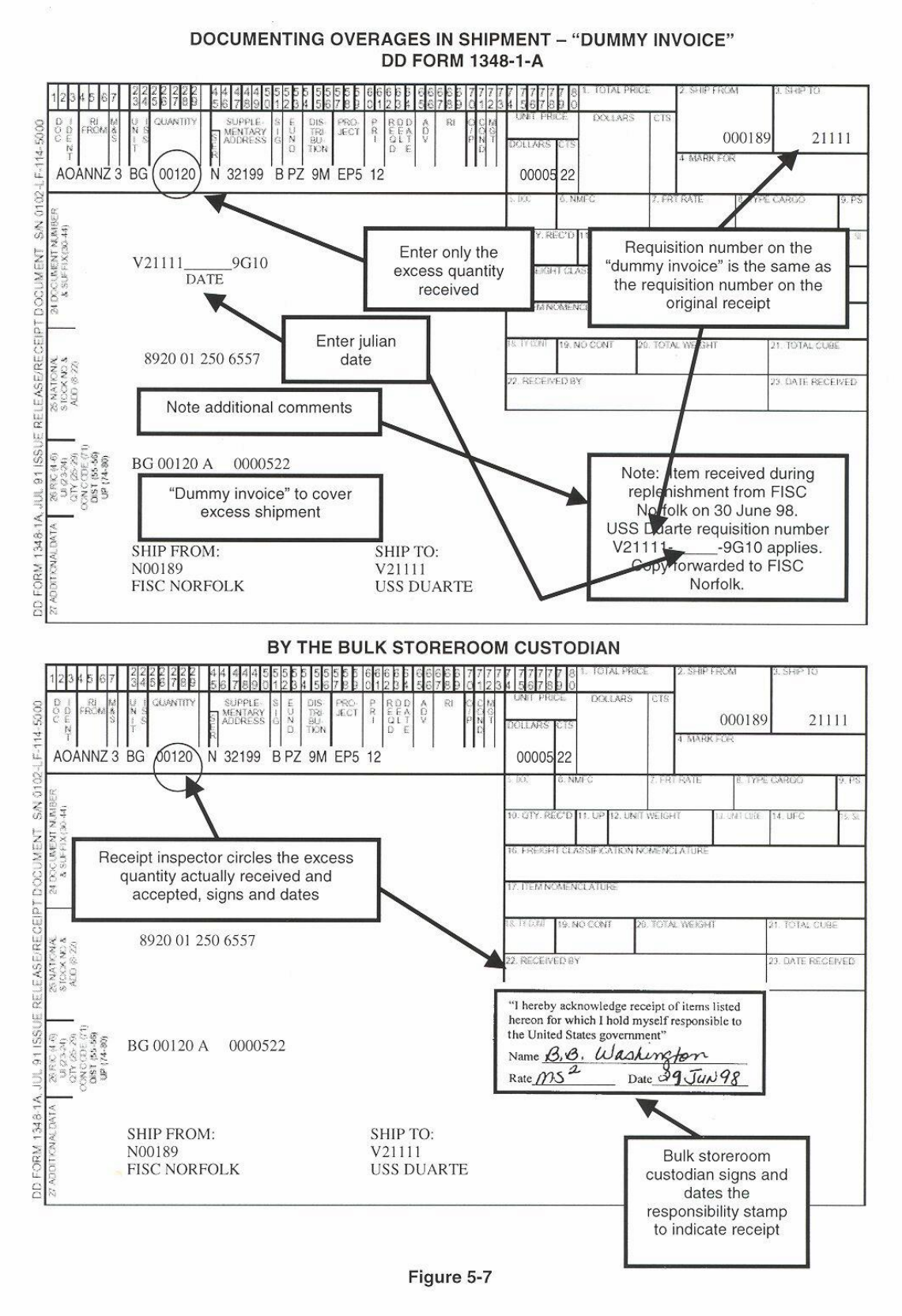

DOCUMENTING OVERAGES IN SHIPMENT – "DUMMY INVOICE"
DD FORM 1348-1-A
AOANNZ 3 BG 00120 N 32199 B PZ 9M EP5 12
00005 22
000189
21111
V21111_____9G10
DATE
8920 01 250 6557
BG 00120 A 0000522
"Dummy invoice" to cover excess shipment
SHIP FROM:
N00189
FISC NORFOLK
SHIP TO:
V21111
USS DUARTE
Enter only the excess quantity received
Enter julian date
Note additional comments
Requisition number on the "dummy invoice" is the same as the requisition number on the original receipt
Note: Item received during replenishment from FISC Norfolk on 30 June 98. USS Duarte requisition number V21111-____-9G10 applies. Copy forwarded to FISC Norfolk.
BY THE BULK STOREROOM CUSTODIAN
Receipt inspector circles the excess quantity actually received and accepted, signs and dates
"I hereby acknowledge receipt of items listed hereon for which I hold myself responsible to the United States government"
Name B.B. Washington
Rate MS2 Date 29 JUN 98
Bulk storeroom custodian signs and dates the responsibility stamp to indicate receipt

Figure 5-7

Figure 4-3, Annotating Overages in Shipment Document, DD Form 1348-1.

It will also be used as the source document for posting the excess receipt. After the preparation of the dummy invoice document, the receipt inspector and bulk storeroom custodian will circle the excess quantity received, then both will sign and date the document. Forward the documents to the FSO.

Overages from a Commercial Source. When an overage occurs from a commercial vendor, the receipt inspector and bulk storeroom custodian will sign only for the requested quantities on the receipt documents and forward the documents to the FSO. Any excess quantities will be returned to the vendor.

Receipts Without Invoices—When food items are received without invoices or unpriced invoices, a dummy invoice will be prepared and the food items will be taken up at the last receipt price as shown on your current NAVSUP Form 335. When the price invoice is received, the receipt unit price rounded off to the nearest cent will be the unit price for the item. A cross-reference will be made on the priced invoice to its related dummy invoice and, if required, an additional line entry will be posted on the NAVSUP Form 367 for any difference.

Erroneous Invoices—An erroneous invoice is an invoice where the invoice quantity times the unit price does not equal the total dollar value.

Erroneous Invoice from a Navy Source. When an invoice is received containing an error of $5 or more, a corrected or credit invoice will be requested from the issuing activity. The error is lined through on the original receipt document without erasing the erroneous figure and the correct amount will be inserted and posted to the NAVSUP Form 1336 and the NAVSUP Form 367. Upon receipt, the corrected or credit invoice will be filed with the retained records. Errors of less than $50 will be posted 'as is' to the NAVSUP Form 1336 and the NAVSUP Form 367. The difference will be absorbed in the price adjustment at the end of the accounting period.

Erroneous Invoice from Commercial Sources. When an invoice is received containing an error of any dollar value, a corrected invoice should be requested from the commercial vendor. The error will be lined through without erasing the erroneous figure and the correct amount will be inserted and posted to the NAVSUP Form 1336 and the NAVSUP Form 367. Upon receipt, the corrected invoice will be filed with retained returns.

Posting Receipts

When you are posting receipts, there are two pieces of information that must be transcribed to general mess records. They are the quantity received and the value of the receipt. Receipts are posted to the Record of Receipts and Expenditures, NAVSUP Form 367; the Subsistence Ledger, NAVSUP Form 335; and the Requisition Log, NAVSUP Form 1336.

The total money value of each receipt document is posted to the NAVSUP Form 367. The first entry is always the inventory value carried forward from the previous quarter. Next, each receipt document is posted to the applicable page of the NAVSUP Form 335. A separate page of the NAVSUP Form 335 is prepared for each item carried in stock.

Distribution of Receipt Documents from Naval Supply Activities

The DOD Single Line Item Release/Receipt Document, DD Form 1348-1; or the local receipt document required by the supplying activity is used for the receipt document except during underway replenishment. During such replenishment, receipt is documented by the DD Form 1149. At least three copies of a receipt document are received.

The copies are distributed as follows:

- Original, signed by the inspector acknowledging that receipts were inspected for quantity and condition and filed in the FSO's accountability file
- One copy, signed by the storeroom storekeeper acknowledging responsibility for the items received and filed in the FSO's accountability file
- One copy, extended, to one of two files; receipts with charge or receipts without charge. This copy is used by the records keeper to post to the NAVSUP Form 335, the NAVSUP Form 367 and the NAVSUP Form 1336 and then filed in the appropriate receipts file
- All remaining copies are attached to the outstanding requisition copy taken from the outstanding requisition file.

Distribution of Receipt Documents from Commercial Sources Other than Prime Vendor

Receipts from purchase and definite delivery-type contracts are handled in much the same manner as receipts from Navy activities. When an order is placed, one copy of the Order for Supplies or Services/Request for Quotation, DD Form 1155, will be given to the storeroom storekeeper for the incoming material file. Upon receipt of the material, the inspector will remove all copies (minimum of three) from the outstanding purchase order file, inspect the material, circle the quantity received and then sign and date block 26 of the DD Form 1155. For more information on DD Forms 1149 (Figure 4-4) and 1155 (Figure 4-5) receipt procedures refer to NAVSUP 486.

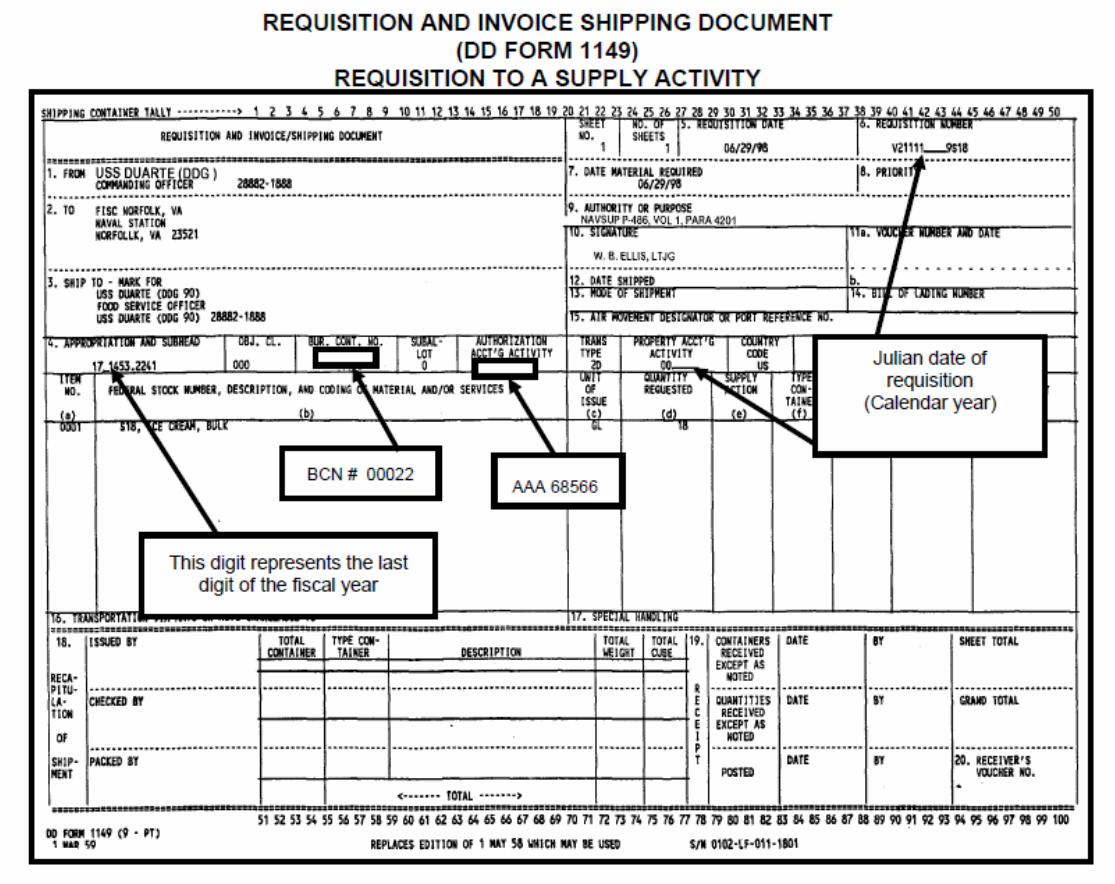

REQUISITION AND INVOICE SHIPPING DOCUMENT
(DD FORM 1149)
REQUISITION TO A SUPPLY ACTIVITY
Julian date of requisition (Calendar year)
BCN # 00022
AAA 68566
This digit represents the last digit of the fiscal year

Figure 4-4, Requisition and Invoice Shipping Document, DD Form 1149.

ORDER FOR SUPPLIES OR SERVICES/REQUEST FOR QUOTATION
(DD FORM 1155)
DEFINITE DELIVERY CONTRACT PURCHASE ORDER

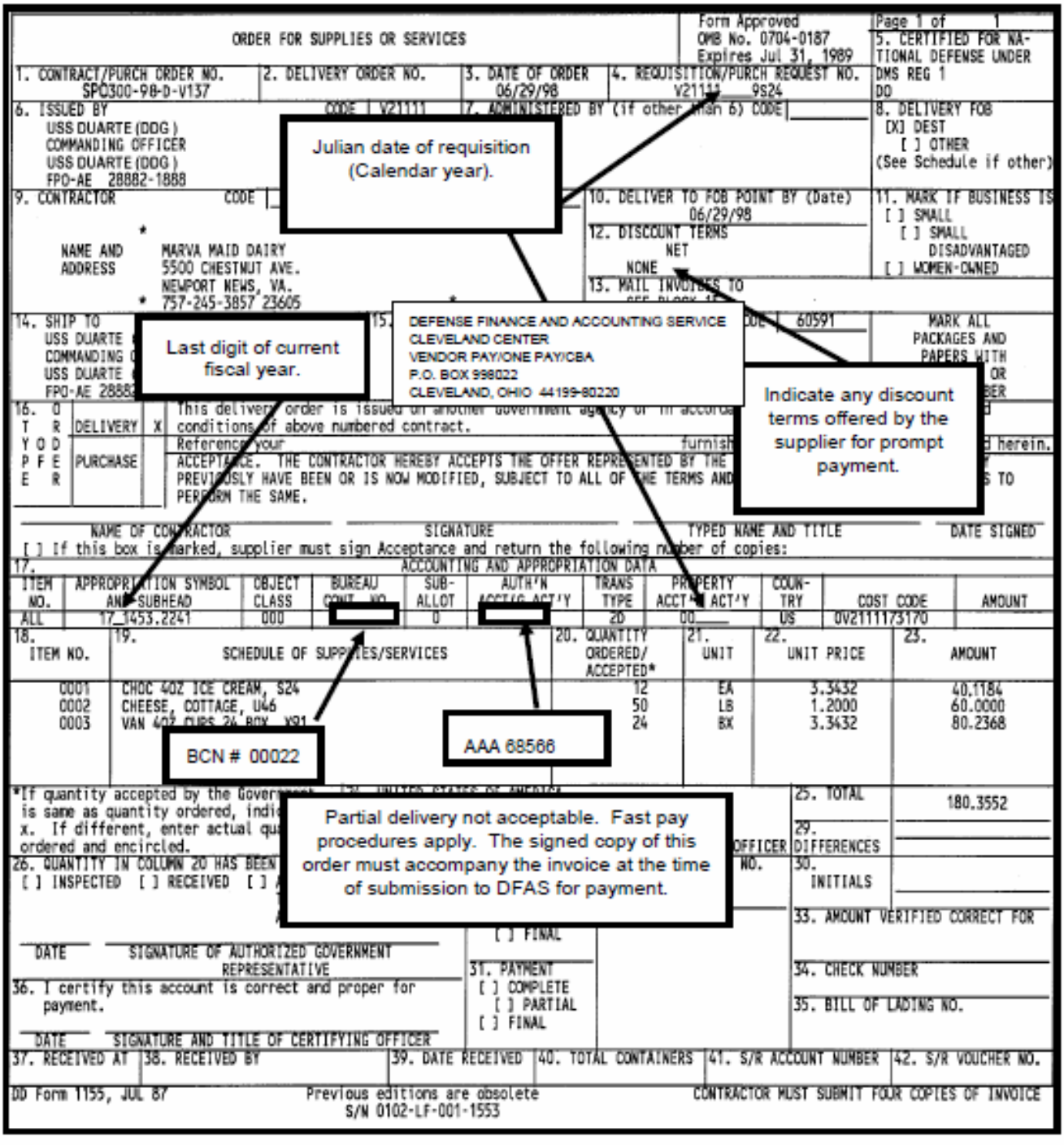

ORDER FOR SUPPLIES OR SERVICES
Form Approved OMB No. 0704-0187 Expires Jul 31, 1989
Page 1 of 1
1. CONTRACT/PURCH ORDER NO. SPO300-98-D-V137
2. DELIVERY ORDER NO.
3. DATE OF ORDER 06/29/98
4. REQUISITION/PURCH REQUEST NO. V21111 9S24
5. CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REG 1 DO
6. ISSUED BY USS DUARTE (DDG) COMMANDING OFFICER USS DUARTE (DDG) FPO-AE 28882-1888
8. DELIVERY FOB [X] DEST [ ] OTHER (See Schedule if other)
9. CONTRACTOR NAME AND ADDRESS MARVA MAID DAIRY 5500 CHESTNUT AVE. NEWPORT NEWS, VA. 757-245-3857 23605
10. DELIVER TO FOB POINT BY (Date) 06/29/98
11. MARK IF BUSINESS IS [ ] SMALL [ ] SMALL DISADVANTAGED [ ] WOMEN-OWNED
12. DISCOUNT TERMS NET NONE
13. MAIL INVOICES TO
14. SHIP TO USS DUARTE COMMANDING USS DUARTE FPO-AE 28882
15. CODE 60591
MARK ALL PACKAGES AND PAPERS WITH
16. DELIVERY / PURCHASE X
This delivery order is issued on another government agency or in accordance with conditions of above numbered contract.
Reference your furnish and the attached sheets, if any, including delivery as indicated, subject to the terms and conditions specified herein.
ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE NUMBERED PURCHASE ORDER AS IT MAY PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED, SUBJECT TO ALL OF THE TERMS AND CONDITIONS SET FORTH, AND AGREES TO PERFORM THE SAME.
NAME OF CONTRACTOR SIGNATURE TYPED NAME AND TITLE DATE SIGNED
[ ] If this box is marked, supplier must sign Acceptance and return the following number of copies:
17. ACCOUNTING AND APPROPRIATION DATA
ITEM NO. | APPROPRIATION SYMBOL AND SUBHEAD | OBJECT CLASS | BUREAU CONT NO | SUB-ALLOT | AUTH'N ACCTG ACT'Y | TRANS TYPE | PROPERTY ACCT'G ACT'Y | COUNTRY | COST CODE | AMOUNT
ALL | 17_1453.2241 | 000 | | 0 | | 20 | 00 | US | 0V2111173170 |
18. ITEM NO. | 19. SCHEDULE OF SUPPLIES/SERVICES | 20. QUANTITY ORDERED/ ACCEPTED* | 21. UNIT | 22. UNIT PRICE | 23. AMOUNT
0001 CHOC 4OZ ICE CREAM, S24 12 EA 3.3432 40.1184
0002 CHEESE, COTTAGE, U46 50 LB 1.2000 60.0000
0003 VAN 4OZ CUPS 24 BOX V91 24 BX 3.3432 80.2368
*If quantity accepted by the Government is same as quantity ordered, indicate by X. If different, enter actual quantity accepted below quantity ordered and encircled.
25. TOTAL 180.3552
29. DIFFERENCES
30. INITIALS
26. QUANTITY IN COLUMN 20 HAS BEEN [ ] INSPECTED [ ] RECEIVED [ ]
DATE SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE
31. PAYMENT [ ] COMPLETE [ ] PARTIAL [ ] FINAL
33. AMOUNT VERIFIED CORRECT FOR
34. CHECK NUMBER
35. BILL OF LADING NO.
36. I certify this account is correct and proper for payment.
DATE SIGNATURE AND TITLE OF CERTIFYING OFFICER
37. RECEIVED AT 38. RECEIVED BY 39. DATE RECEIVED 40. TOTAL CONTAINERS 41. S/R ACCOUNT NUMBER 42. S/R VOUCHER NO.
DD Form 1155, JUL 87 Previous editions are obsolete S/N 0102-LF-001-1553 CONTRACTOR MUST SUBMIT FOUR COPIES OF INVOICE
Julian date of requisition (Calendar year).
Last digit of current fiscal year.
DEFENSE FINANCE AND ACCOUNTING SERVICE CLEVELAND CENTER VENDOR PAY/ONE PAY/CBA P.O. BOX 998022 CLEVELAND, OHIO 44199-80220
Indicate any discount terms offered by the supplier for prompt payment.
BCN # 00022
AAA 68566
Partial delivery not acceptable. Fast pay procedures apply. The signed copy of this order must accompany the invoice at the time of submission to DFAS for payment.

Figure 4-5, Order for Supplies or Services/Request for Quotation, DD Form 1155.

FOOD STORAGE

All areas in which food items are stored must be kept clean and clear of unnecessary traffic and unpleasant odors. Care should be taken to keep food items away from areas where asphalt, fuel, or lubricating oils are present. Smoking in food storage spaces is prohibited to avoid fire and prevent certain food items from absorbing the odor or smoke. Items in damaged containers or bags will be issued immediate if they are fit for human consumption; otherwise, they will be surveyed. Inspect the food items regularly for signs of damage, spoilage and insect or rodent infestation. More specific storage principles and procedures are discussed later in this chapter.

PRINCIPLES OF STORAGE

Certain basic storage principles and procedures must be observed regardless of the type of items. Organized storage spaces help facilitate storing, issuing, counting, cleaning and safety. This organization will result in a quicker determination of items that are low and thereby avoid unplanned replenishment. Applying these principles will save you headaches and future problems.

Safety

Materials must be stored properly to prevent injury to the ship and the crew and to prevent damage to the material itself. Items that are stored overhead and on top of bins must be secured with particular care because the lashing or other means of securing maybe subjected to heavy strain while the ship is underway.

Accessibility

Supplies must be arranged in storage to facilitate breakouts. Items that are issued most frequently should be located nearest to the breakout area. Whenever possible, avoid storing an item on top of or behind a totally different kind of material. Failure to observe this rule causes slow breakouts and slow and inaccurate inventories. Items must be stored so that, under ordinary conditions, the oldest stock will be the first issued; this process is the First In/First Out (FI/FO) rule.

Orderliness

Case goods should be stored neatly in the storage area so that they can be counted by sight without being moved.

Safety, accessibility and orderliness are closely interrelated and must be considered together. For instance, if for the sake of accessibility, you leave cases of canned goods stacked in the passageway, or if you do not secure them properly, you will violate rules of safety and orderliness. If such a practice were carried to an extreme, you would eventually have such confusion that accessibility would suffer also.

SEMI-PERISHABLE FOOD ITEMS

The term semi-perishable refers to food items that are canned, dried, dehydrated, or otherwise processed to the extent that such items may, under normal conditions, be stored in a non-refrigerated space. While semi-perishable food items are not nearly as prone to spoilage as perishable food items, spoilage can and will occur if the items are mishandled, improperly stored, or stored too long. Always remember the length of storage should be based on the packing date of the product and not the date of receipt.

Storage Principles of Semi-perishable Food Items

When possible, store semi-perishable food items in clean, cool, dry, well-ventilated storerooms. Check all items at regular intervals for signs of damage. Keep your storerooms clean to prevent the contamination of bagged foods by dirt and dust.

Separate and clearly mark shipments so that the oldest lots-as packed, not as received—are issued first. However, if newer lots show signs of deterioration or spoilage, they should be issued first.

Methods of storage depend on the size and the contents of the container and the bursting or breaking strength of the bottom layers. Care must be taken not to stack items too high because of the danger of bursting or crushing the bottom layers.

Do not stack items near steam or other heated pipes. Use pallets or deck grating to raise the items off the deck and stack individual lots so as to permit proper circulation of air and facilitate cleaning.

Bagged items and those requiring insect control should not be stored in large lots in corners of the storeroom or directly against the bulkhead. This type of storage will not permit sufficient room for cleaning and inspecting. When possible, palletized storage should be used to ease the handling of the stores and reduce losses through breakage in handling.

The safe storage period for dry food items varies greatly, depending on such elements as temperature, humidity, care in handling, protection from the weather, quality of the food when received and the packing. Food items that have been on hand beyond the safe storage limit should be inspected for spoilage, leakage, or other damage. If such items are in good condition, use them as promptly as possible. Survey all items unfit for human consumption according to the NAVSUP P-486.

Rotation of Semi-perishable Food Items

The publication, NAVSUP P-486, contains detailed information regarding the rotation of semi-perishable food items. By careful study you should develop general ideas about the keeping times of the various foods and the changes that indicate a food item has been kept too long. The keeping times shown are average keeping times for products stored at 70°F. The 70°F temperature is representative of average temperatures at most Navy stock points. Keeping times will be reduced by approximately 50 percent if storage temperatures are maintained above 90°F. Keeping times will be increased by approximately 100 percent if storage temperatures are maintained at 41°F.

PERISHABLE FOODS

All foods are perishable. The term perishable as applied here refers to food items requiring refrigeration and special handling.

All fresh and frozen food items are highly perishable and subject to rapid deterioration when improperly stored. They require accurate temperatures, controlled humidity, air circulation and special care in keeping the storage space sanitary. Failure to maintain any one of these conditions will result in rapid spoilage and eventual loss. Most spoilage in fresh and frozen food items is caused by bacteria and fungi and spreads rapidly from the decayed items to the sound food items.

You may be assigned as the CS in charge of the cold storage area. When such is the case, your duties regarding storage and care of fresh and frozen food items are as follows:

- Make frequent inspections, sort and remove any decayed items or portions. This will keep losses and surveys to a minimum
- Separate and mark shipments to make clear their relative ages. This allows the issue of oldest food items first unless there is some reason (such as the condition) for giving a newer lot priority
- Inspect food items to make sure Department of Defense (DOD) requirements are met. In the event frozen stores are received in a thawed or partially thawed condition, seek PMT and refer to the NAVSUP P-486 for survey procedures.

Fresh Fruits and Vegetables

Raise the containers off the deck with pallets or gratings away from bulkheads and cooling coils and provide space between stacks and at least 6 inches of clearance between tops of stacks and the opening of the air ducts to permit the circulation of air. In some cases it may be necessary to use a fan to maintain adequate circulation of all parts of the storeroom.

CAUTION: When fresh fruits and vegetables are stored in a tight compartment at temperatures of 40°F or higher, the concentration of the carbon dioxide produced by respiration may reach a level in which it is unsafe to work.

Meat and Meat Products

Proper circulation of air is of prime importance in keeping the desired temperature in all parts of the meat storage space. Do not stack cases directly on the deck; use pallets or deck gratings to allow free circulation of air under all items stored in the space. Stacks should be at least 4 inches from the bulkhead or refrigeration coils. Generally, when the recommended temperature in all parts of the refrigerated space is uniform within the stacks, the circulation of air in the space is considered adequate.

Frozen Fruits and Vegetables

Frozen fruits and vegetables are highly perishable unless properly stored. Upon delivery, they must be transferred promptly to a low-temperature storage space. Check the temperature of the load upon arrival by taking temperature readings of cartons selected from top layers inside of shipping cases.

When the temperature reading is higher than that of the freezer room, scatter the shipping cases loosely about the room on hand trucks or on the deck with adequate space between individual cases to permit rapid lowering of the product temperature to the freezer room temperature. Use of a portable fan to create an air current over the items will speed up temperature equalization. When the temperature of the items has been lowered sufficiently, stack the cases compactly at once. Stack from the bulkhead toward the center of the room, starting about 4 inches from the bulkhead or bulkhead coils. Stack the cases on pallets to permit the circulation of air under them. The use of pallets will also improve the sanitary conditions. In rooms where cold air is expelled directly from blower units at the ends of the rooms, the cases should be stacked low enough to permit air circulation. Allow at least 2 feet between the top of the stack and the overhead or air ducts.

Dairy Products and Eggs

Keep the cold storage room for dairy products and eggs fresh by keeping it clean and by circulating the air slowly. Air circulation can be increased by the use of pallets or deck gratings and by the proper stacking of the various lots.

REFRIGERATION UNITS

Three factors affect the rate at which frost and ice accumulate on refrigerator coils: (1) door traffic, (2) excessive temperature difference between the coils and the box and (3) moisture from the stored materials. In each case the buildup can be reduced by properly planned and executed breakout procedures. Measures discussed in the following paragraphs may be used to prevent excessive icing of coils.

Door Traffic

Breakouts should be planned for a full day's requirements. All work centers must draw their frozen subsistence items at a predetermined time, usually in the morning. Any items withdrawn at this single daily breakout from the freeze box, if not intended for immediate use, should be stored temporarily in the chill box.

Temperature Controls

A difference in the temperature of the refrigerated spaces and the refrigeration coils will cause vapor to form on the coils and the refrigeration coils will turn the vapor into ice. This ice formation continues until the temperatures of the coils and the refrigerated spaces equalize.

The temperatures of the coils and the refrigerated spaces are likely to differ most during the period when the freeze box is being restocked. The higher temperature of the food items being stored will cause a rise in temperature in the refrigerated space and produce vapors. There is no way to prevent this condition, since the work of storing must go on. However, once the storage has been completed, the box should remain closed until the normal temperature level of the freeze box has been reached.

Air Circulation

Proper storage and adequate air circulation help prevent excessive ice formation. Continuous circulation by electric blowers is necessary at all times. Storage arrangements should allow free circulation of air throughout the box.

Adequate aisles and overhead space should be provided to permit the free circulation of air from the blowers. Blowers should be inspected each day to ensure proper operation. Any malfunction in the circulating unit should be reported to the duty engineer immediately.

Defrosting and Cleaning Refrigerators

The refrigeration coils and units in cold storage spaces should be defrosted as often as possible. A layer of frost or ice 1/4 or more inches thick will reduce the efficiency of the refrigeration system and may result in overloading the compressors. Always consult the engineering department regarding the defrosting of the refrigeration system.

Most refrigeration units are so equipped that hot gas can be run through the cooling coil to melt the ice. Then the bulkheads, the overhead and the deck remain cold because of the speed with which the coils are defrosted and there is no necessity for moving the food. This method of defrosting should be used on all ships equipped with such a hot gas capability, since refrigeration is not interrupted.

If your cold storage plant is not of this type, it will be necessary to consult with the engineering department to determine other methods of defrosting. And, of course, you should never use an ice pick or a sharp tool to pick ice from the coils.

Once defrosting is completed by a non-hot gas method, scrub and wash the box thoroughly with hot soapy water. Rinse, dry and air the box and return the food to its place immediately.

Refrigerator Log

A refrigerator (or reefer) log must be maintained by the person responsible for the refrigerated spaces. Temperature readings must be taken twice daily and at other times as necessary. The reefer log is presented daily to the LCS and the FSO for review and initialing. Temperature irregularities must be reported to the LCS and the FSO immediately.

EXPENDITURES

Food items may be expended by issue, transfer, sale, or survey.

ISSUES

Issues (or breakouts) of food items to the GM must be made on preapproved breakout documents and follow established procedures. These procedures are explained next.

BULK STOREROOM ISSUE PROCEDURES

Breakouts of food items from the bulk storeroom to the work centers must not be made without an approved issue document Food-Item Request/Issue Document, NAVSUP Form 1282.

Issuing Procedures

The bulk storeroom custodian issues the food items requested using a NAVSUP Form 1282, enters the actual quantities furnished and delivers the items to the senior CS on duty. The Bulk Store Room Custodian and the individual accepting the material sign in the Issued By and Received By blocks, respectively. Signatures on breakout documents serve as authorization and transfer accountability. Therefore, the importance of following established procedures cannot be overemphasized.

Document Preparation

The FSO establishes controls to account for each breakout document. When dry, fresh and frozen items are in the custody of different work centers, separate breakout documents must be prepared (Figure 4-8).

Return of Food Items

Strict accountability must be exercised over food items at all times to minimize waste and to make sure items are used for the purpose intended. Unused food items that are being returned must not be kept in the galley. These items (often referred to as returns) must be promptly returned to the storeroom so that accountability can be reestablished. Returns may be made on the original issue document, NAVSUP Form 1282. This form is signed in the Issued By block by the senior CS on duty and in the Received By block by the bulk storeroom custodian.

Returns

Unprepared food items remaining in the galley after completion of meal periods in which the items were intended to be used must be returned to the storeroom on a daily basis. The NAVSUP Form 1282 containing daily issues must be modified to document items and quantities returned and thereby show the new issues to the GM. Procedures for returns are the same as explained earlier under the Issues Procedures heading.

F8314Z001 TIME: 18:13 DATE: 22JUN98

NAVSUP FORM 1282 DAILY BREAKOUT DOCUMENT | CONTROL NO. 8180-1-3-01-01 | GENERAL/BRANCH MESS CODE 0

ACTIVITY GENERAL MESS MAIN LINE GALLEY (FORE) | UIC N21111 | REPORT GENERATED ON 22JUN98 18:13

REQUISITIONED BY (SIGNATURE, RATE AND TITLE) J.B. Martin MS2 | DATE FOR CONSUMPTION 06/29/98 | APPROVED BY (SIGNATURE, RATE AND TITLE) S.A. Clinton MSC

FOOD CODE	NSN	NOMENCLATURE	U/I	QUANTITY REQUESTED	QUANTITY ISSUED	QUANTITY RETURNED	TOTAL QUANTITY	UNIT PRICE	VALUE	QUANTITY ON-HAND
		SEMI-PERISHABLE (DRY)								
C29	8915001491571	GARLIC,DEHYDRATED, 12 OZ	JR	1				1.7400		
C32	8915005841647	JUICE, APPLE, #3 CYL	CN	4				1.4500		
C38	8915002811809	JUICE, GRAPE, #3 CYL	CN	4				1.4500		
C52	8915002412800	JUICE,ORANGE, #3 CYL	CN	4				1.5300		
C58	8915006342439	JUICE,PINEAPPLE, #3 CYL	CN	4				1.3700		
C73	8915009356629	MUSHROOMS, JUMBO SIZE	CN	1				2.7500		
# D85	8915013734978	TOMATOES, DICED, # 10	CN	0				2.7100		
G10	8920012506557	RICE,PARBOILED,10 LB,LNG GRAIN,TP 2	BG	3				3.9100		
G22	8920001606165	STARCH,CORN, 1 LB	LB	0				0.5700		
J53	8935002346217	SOUP AND GRAVY BASE,BEEF, #2 1/2	CN	0				1.8700		
K91	8945006160081	SALAD OIL, 1 GAL	CN	0				5.5200		
M06	8950001256333	BAKING POWDER, 12 OR 14 OZ	CN	0				2.0300		
N87	8950010796943	SALT, TABLE, 5 LB	BG	0				1.0200		
P05	8950006165483	THYME,GROUND, 1-2 OZ.	JR	0				0.9400		
P07	8950010793978	VINEGAR, CIDER, 32 OZ	BT	1				0.8500		

ISSUED BY (SIGNATURE, RANK AND TITLE) | DATE | WORKCENTER TOTAL | $

RECEIVED BY (SIGNATURE) | DATE

RETURNED BY (SIGNATURE) | DATE

RECEIVED BY (SIGNATURE) | DATE

Figure 4-6, Daily Breakout Document.

Document Distribution and Posting

The transfer documents are distributed to the receiving activity and are kept at the transferring activity. The subsistence bulk storeroom custodian gives the copies to the GM records keeper.

SURVEYS

Purpose

The purpose of surveys (disposition of material after a loss situation has been investigated) is to expend materials from the records that are damaged, obsolete, deteriorated, lost, or stolen. The purpose also includes a review of the existing condition of the materials, the cause and responsibility for this condition and the recommendation for the final disposition of the materials.

Document

The document used depends on the reason for the survey. Refer to the NAVSUP P-486 for guidance on document usage and preparation.

MAINTENANCE of RECEIPT and EXPENDITURE RECORDS

Although the supply officer or FSO is responsible for requisitioning and procuring food items, in some instances, you may be required to perform these duties. In either case, you will need to maintain receipt and expenditure records. The following paragraphs explain the use of the Requisition Log, NAVSUP Form 1336 and the Record of Receipts and Expenditures, NAVSUP Form 367.

Requisition Log

Maintaining the Requisition Log, NAVSUP Form 1336. The requisition log provides requisition documentation control and information on outstanding requisition documents and receipts. It also provides a breakdown of receipts with and without charge. Outstanding requisitions that are brought forward to the current month's requisition log should carry the same requisition document numbers assigned on the previous month's log.

Refer to the NAVSUP P-486 for guidance on document usage and preparation.

Receipt Transactions

Receipt transactions recorded will include value of inventory carried forward, receipts from transfers and receipts from purchases. All receipt transactions are posted as they occur.

EXPENDITURE TRANSACTIONS

Expenditure transactions recorded will include the following:

- Transfers the money value (extended at last receipt price) of each transfer will be posted to the NAVSUP Form 367 as occurring
- Issues to the GM the money value (extended at last receipt price) to the GM will be posted at the end of each accounting period from the Food Item Report/Master Food Code List, NAVSUP Form 1059. This is a summary of issues to the GM for the accounting period it summarizes

- Inventory the money value (extended at last receipt price) of the inventory, at the end of the accounting period, will be posted from the NAVSUP Form 1059
- A copy of the NAVSUP Form 367 will be included as part of the subsistence returns to NAVSUP at the end of the accounting period.

INVENTORY

Inventory is conducted in the GM on a quarterly basis. Special inventories are conducted as required. The types of inventories and the inventory requirements are explained next.

Requirements

GM food items must be inventoried by the FSO on the last day of each quarter and before being relieved. Special inventory requirements are as follows:

- At the end of each patrol period for dual crewed (i.e., Blue and Gold)
- Aboard ships without Supply Corps officers, an inventory must be taken before the relief of the CO if an accountable FSO has not been named.

Types

As a CS, you will often be directed to conduct a variety of inventories, some of which may be quite unfamiliar to you. Listed next are short explanations of some of the common inventories held.

Quarterly inventory. This inventory is required in all GMs within every 90 days. Spot Inventories. This procedure is used when the Food Service Officer conducts spot inventories of subsistence items in the bulk storeroom at unannounced times during the course of the monthly accounting period. A minimum of 10% subsistence line items maintained in the bulk storeroom will be inventoried at least twice a month (for a minimum of 20% monthly). Spot inventories should concentrate on high value and fast moving items. The results will be compared against the Subsistence Ledgers (NAVSUP Form 335) to ensure the inventory accuracy of the bulk storeroom is maintained. Refer to your local TYCOM guidance for any additional and or increased levels of spot inventory requirements not outlined in this paragraph

Relief of accountable officer. When the FSO is relieved, a complete inventory is taken to establish the new FSO's accountability.

Refer to the NAVSUP P-486 for further guidance concerning inventory procedures.

SUMMARY

This chapter covered the correct procedures and importance on how to properly receive, inspect and store food items. We also discussed the principles of food storage to include safety, perishable, semi-perishable food items and proper maintenance and cleaning of refrigeration units. This chapter also covered the proper procedures of how to prepare, issues, transfers, post expenditures and the requirements and types of inventories. For further information on all of these topics refer to NAVSUP 486 Chapter 5.

CHAPTER 5

SANITATION

***LEARNING OBJECTIVES**: Upon completing this chapter, you should be able to do the following:*

— Identify the different food-borne illnesses.

— Identify the different types of poisonings.

— Identify the principles of personal hygiene.

—Identify the principles of food service equipment.

—Identify the principles of food service spaces.

—Identify semi-perishable, perishable food products.

—Identify defense of Chemical, Biological, and Radiological Agents.

INTRODUCTION

In a foodservice operation, nothing rivals the importance of sanitary food preparation and service. Carelessly handled food is easily contaminated with pathogenic organisms that may lead to illness. This chapter discusses the methods of preventing illnesses arising from poor sanitary practices in the preparation and service of food.

In addition to the hazards of food contamination, with which Culinary Specialist (CS) personnel have always contended, modern warfare has added other hazardous—chemical, biological and radiological agents that may be used in any future war. Protection of the food supply and decontamination measures in the galley and messing areas are vital to the defense of the ship or station.

FOOD-BORNE ILLNESSES

Food-borne illnesses can incapacitate large numbers of personnel in a short period of time. In addition to the toxins or poisons produced by bacterial growth, certain foods are inherently or naturally poisonous. The poisons in these foods tend to attack the nervous system resulting in such symptoms as weakness or paralysis, numbness, tingling of the ears, apprehension and even death.

Food-borne illnesses can be classified into the three following basic types: natural or chemical food poisoning, food intoxication and food infection.

NATURAL or CHEMICAL FOOD POISONING

Both natural and chemical food poisonings are caused by man—man's carelessness, indifference, or ignorance. Natural and chemical food poisonings are grouped together as one food-borne illness because they both occur naturally. The characteristics that differentiate natural and chemical poisonings are discussed next.

Natural Food Poisoning. In this type of food-borne illness, the food in its natural state contains elements poisonous to humans. As a CS, you work with many new foods that are not common to the United States.

Some of these foods are from plants and animals that can cause severe illness and even death when consumed.

Every effort is made to keep poisonous plants off a ship. However, sometimes they do get aboard. Toadstools, hemlock mussels (such as those found on the West Coast during the summer), tropical fish (such as toadfish, puffing fish and certain members of the jack fish family), and in tropical waters, at certain seasons of the year, barracuda can cause poisoning and death. Some types of mushrooms also contain natural poisons. Only an expert can decide whether a certain mushroom is fit to eat. The safest rule is never to use unfamiliar foods unless your medical officer approves their use.

Chemical Food Poisoning.

Some food-borne illnesses are caused by chemical poisons. In the case of chemical food poisoning, the poisons are introduced into the food accidentally. The following types of chemical poisoning may be experienced in foodservice operations.

Antimony Poisoning - Antimony poisoning is caused by eating food cooked in poorly coated or chipped enameled cooking utensils.

Cadmium Poisoning - Cadmium poisoning may take place if chilled acid foods or drinks are allowed to stand in cadmium-plated metal containers before they are served. Illness may strike 10 to 15 minutes after the food is eaten. Lemonade, fruit punch, tomatoes, raspberry gelatin dessert and tea containing lemon juice can be contaminated by cadmium. In addition, ice trays and metal pitchers plated with cadmium can cause chemical poisoning when filled with cold acid foods.

Cyanide Poisoning - Cyanide poisoning may result if silverware is not properly washed and sanitized after detarnishing.

Zinc Poisoning - Zinc poisoning in food is rare. It may occur when acid foods are cooked in galvanized iron kettles. Outbreaks have occurred when apples have been cooked in this type of kettle.

Lead and Arsenic Poisonings - Lead and arsenic sometimes used to spray vegetables may cause these foods to become poisonous. Be sure all fresh fruits and vegetables are thoroughly washed before you cook them or before they are eaten raw. Lead poisoning may also result from the ingestion of food or water that has been in contact with lead pipes, lead-plated equipment and lead-soldered pots and pans. Lead is a cumulative poison; the accumulation of small doses in the body will eventually cause chronic lead poisoning.

Fluoride Poisoning - Fluoride poisoning is caused by sodium fluoride, a substance often used to get rid of cockroaches. Sodium fluoride is a white powder that can be easily mistaken for powdered milk. Keep all containers of such poison out of the galley and bakeshop.

Methyl Chloride Poisoning - Methyl chloride poisoning is caused by leaking mechanical refrigerators. Check your equipment for such leaks and request scheduled Planned Maintenance Service (PMS) from the engineering department to detect faulty equipment.

FOOD INTOXICATION

This type of illness is caused by toxins. Under favorable conditions certain bacteria produce chemical compounds called toxins. If ingested, toxins cause food intoxication. Staphylococcus is the most commonly reported food intoxication.

Staphylococcus

The staphylococcus germ is found particularly in the hair, in the throat, in pimples on the skin, infected cuts, boils and in great abundance in the postnasal drip of people recovering from colds. Consequently, the most prevalent carrier of food intoxication is foodservice personnel. People with any of these symptoms must not be allowed to work in food preparation spaces in any capacity.

Foods most associated with outbreaks of staphylococcus are pork products and fowl. Ham is also susceptible to staphylococcus poisoning and must not be sliced too far in advance of serving unless properly refrigerated.

Other foods commonly involved are potted meats, fish, cheese, milk products (including cream- and custard-filled pastries), and potato and macaroni salads. Foods can contain sufficient toxin to cause food poisoning and yet have no odor of spoilage and no abnormal taste. Even when food has been properly refrigerated, it can become contaminated by bacteria while it is being prepared or while it is standing in the galley before it is served.

E Coli (Escherichia coli)

Escherichia coli (E. Coli) are large and diverse group bacteria. Although most strains of E. Coli are harmless, others can make you sick. Some kinds of E. Coli cause disease by making a toxin called Shiga toxin. The bacteria that make these toxins are called "Shiga toxin-producing" E. Coli or STEC for short.

Botulism

Botulism, usually fatal, is caused by the toxin produced by the rod-shaped bacterium called clostridium botulinum. Botulinum organisms are found in the soil and gain access to foods through contact with soil, dust, and possibly water. The foods most often responsible for botulism are either canned or fermented foods in which the preserving process has not succeeded in destroying the bacteria in the food. The botulinum grows and multiplies in an airtight container. However, when cans are damaged, leak, bulge, or are sprung, the contents are presumed to be unsafe.

The botulinum organisms sometimes produce a gas and cheesy odor in food, but the absence of these signs does not necessarily mean that the bacteria are not present.

FOOD INFECTION

This type of food illness is caused by microorganisms such as the salmonella, shigella and clostridium species and the streptococcus, bacillus, and typhoid fever bacteria. A large percentage of food infections are transmitted by foods that have been allowed to remain at room temperature for a prolonged period of time.

The great majority of outbreaks of food infection are caused by meat (poultry, particularly turkey) and meat mixtures. For this reason, poultry dressing should not be served as a leftover. Other foods that may be involved are custards, milk cream, ice cream, seafood, meat, eggs, meat products,

shellfish, salads, mayonnaise, salad dressings, poultry dressing, bread puddings, cream pies, éclairs and filled pastries

These microorganisms are transmitted to the food by personnel who are sick or are carriers and who are allowed to handle food in the food-preparation area.

Salmonellosis

Salmonella bacteria are transmitted by foods, usually from undercooked or semi-cooked raw foods, or from foods that have become infected after cooking by persons who are harboring the bacteria. Since salmonella bacilli leave the body through the intestinal tract, the main source of salmonella infection is people who do not wash their hands after leaving the head. Consequently, they contaminate all the food they handle. In addition, mice, rats and cockroaches may contaminate food by dragging filth over food and food utensils, or by intestinal deposits that are brushed off into food or containers.

While no specific foods are responsible for salmonellosis, the ones most likely to harbor the salmonella bacilli are (1) those that are usually eaten raw such as salads and greens; (2) cooked leftover foods that are not reheated thoroughly; (3) foods that are undercooked, especially poultry and uninspected meats; and (4) infected eggs that are eaten raw or undercooked. See "Safe Egg-Handling Guidelines" in Chapter 1 of NAVMED P-5010.

Streptococcus

Infections such as septic sore throat and scarlet fever are transmitted by contaminated milk and by certain other foods, including meat, meat products and dressings. One type of this infection also causes a gastrointestinal disturbance. Floor dust is one of the modes of transmission.

Typhoid Fever

Typhoid fever is transmitted by milk, shellfish, or water supplies that have become polluted with the urine or feces of a person harboring the organism of this disease. It is also spread by human carriers and flies that transport the typhoid bacteria from soiled articles to foods, dishes and cooking utensils.

Bacillus Dysentery

Bacillus dysentery is transmitted by contaminated foods or water, by human carriers, or by flies. The bacilli of this disease are found in the bowel discharges of infected persons.

Infectious Hepatitis

Infectious hepatitis is a form of liver disease with symptoms of general discomfort. Jaundice, often characterized by skin yellowing and other signs of liver injury are sometimes present. The disease is highly contagious. Drinking water or unsanitary conditions and flies or other biting insects may transmit the infectious material.

ANIMAL PARASITES

Animal parasites sometimes enter the body in food and produce infections. Some of these forms of animal life are one-celled. All are so tiny that they are not visible when the food is being prepared.

Amoebic Dysentery

This illness is caused by a one-celled animal, the amoeba. These organisms eat the red blood corpuscles of the body and the cells that line the intestines. The dysentery-producing amoeba is transmitted by foods served cold and moist, such as celery, lettuce, other fresh vegetables, or fresh berries. These foods may be infected by human earners, by flies, or by having been grown in fields where animal excreta was used as fertilizer.

Trichinosis

Eating infected pork that has not been thoroughly cooked is the most common cause of trichinosis. All fresh pork products must be cooked to an internal temperature of 165°F for 15 seconds or above to kill the trichinella worm. Since there is no way of knowing whether or not this parasite is present, the pork must always be thoroughly cooked.

Beef Tapeworm Infection

Beef tapeworms are transmitted by infected beef that has not been cooked long enough to kill the encysted larvae. To prevent ingesting the beef tapeworm, only government-inspected beef should be used. If it is necessary to use beef that has not been inspected, freeze it at 14°F or below for 5 days or longer, or pickle it in a 20 to 25 percent salt solution for 5 days or longer. Cook beef well-done. Never serve it rare.

Fish Tapeworm Infection

Fish tapeworm is transmitted by infected fish that has not been thoroughly cooked. For purposes of safety, always ensure that fish is thoroughly cooked and is never tasted in the raw state.

MOLDS AND YEASTS

Other types of cell life that may not be harmful are molds and yeasts.

Molds

Molds are composed of many cells and maybe very small or large enough to cover an entire wall. They grow best in dark, damp places where temperatures are favorable. Molds also grow well in acidic food with little moisture, (examples jams, jellies, and cured, salty meat such as ham, bacon, salami). Some molds are valuable in the production of medicines such as penicillin; other molds may cause certain infections in human beings.

Molds spoil the taste of food and eventually destroy it. Molds may be removed from certain foods and the remainder of the food used. Consult your medical department on the precautions to be taken.

Yeasts

Like bacteria, yeasts are single-celled. Signs of spoilage can include a smell or taste of alcohol. They reproduce by budding. The yeast itself looks white, pink discoloration or slime. When a bud becomes sufficiently large, it separates from the original cell and becomes an independent cell. Certain yeasts are used in bread making, vinegar fermentation and the manufacture of beverages.

FOOD PREPARATION

It is evident that the foodservice worker is the most important link in the transmission of disease through food. The workers' health, personal habits, understanding of bacteria and the methods of preparing and serving of food are of concern not only to themselves but also to their shipmates as well.

Bacteria

An understanding of bacteria is valuable to all personnel and essential to those who work with food in any way. Bacteria are one-celled microorganisms so small they are visible only under a microscope. They are widely distributed in the air, water, soil and in animal and plant tissues. Bacteria are classified according to their shape. Those round in shape are called cocci, the rod-shaped ones are called bacilli, and the spiral-shaped ones are called spirilla.

Since bacteria cannot be seen, our best defense against the harmful bacteria is strict adherence to sanitation principles. Bacteria can move of their own accord only in liquids and cannot leave a fluid surface unless transported as "passengers" by other agents such as dust, food dishes, silverware, cooking utensils, dirty fingers or fingernails, a common drinking cup, a hand towel, water, insects, or rodents.

Bacteria reproduce themselves simply by dividing in half. On the average each bacterium, under favorable conditions, will divide and become two bacteria every 20 minutes. The rate of multiplication or growth of bacteria is affected by heat or cold. Certain types of bacteria, if allowed to grow and multiply, produce toxins that cause food poisoning. Boiling will kill all bacteria, but it will not kill the toxins once they are allowed to form. Certain strains of the staphylococcus bacteria will withstand boiling temperature for long periods of time before they are killed and are virtually impossible to kill by normal cooking methods. Once toxins have been allowed to form, no amount of cooking will make the food safe. Refrigeration will prevent the bacteria from producing toxins but will not kill the toxins once they are formed.

FOODSERVICE PERSONNEL

Since foodservice personnel are considered to be the most likely mode of transmission of disease through food, certain requirements such as medical examinations, sanitation training and personal hygiene must be completed before such personnel can work in food preparation areas.

Physical Examination

All foodservice personnel including personnel employed by civilian contract services must be examined and determined to be free from communicable diseases before initial assignment in foodservice. Subsequent physical examinations will be conducted annually. The physical examination must be sufficiently comprehensive to detect acute or chronic diseases. Laboratory tests and other diagnostic determinations are performed at the discretion of the senior medical officer; however, all foodservice personnel must be examined for evidence of tuberculosis. Employees of contract services must be examined by either local or military medical departments to make sure a complete and thorough physical examination has been done.

Personnel having any open lesions, particularly on the hands, face, or neck or acne on the face, are prohibited from performing foodservice duty.

Examination of personnel with questionable medical or social histories must be comprehensive including X-ray of the chest, stool and urine examinations for parasite and bacterial pathogens and other such determinations as may be indicated by international agreements.

All personnel must repeat medical tests when away from duty for 30 days or more. All personnel must submit to laboratory examinations and other tests to detect and treat acute or chronic diseases and be relieved from duty if they are infected.

Training

All foodservice personnel must be thoroughly indoctrinated in personal hygiene and food sanitation, as well as in the methods and importance of preventing food-borne illness. Temporary foodservice personnel must be indoctrinated as follows:

- All foodservice personnel will receive a minimum of 4 hours initial training and 4 hours annual refresher training in foodservice sanitation principles
- All foodservice sanitation training will be conducted by environmental health officers, preventive medicine technicians, or any E-5 and above.

In those cases where it can be shown that environmental health officers or preventive medicine technicians are not available to perform such training, medical department representatives, CSs in paygrade E-5 and above, or civilian foodservice supervisors who have received special training to qualify them as foodservice sanitation instructors maybe used. Special instructor certification training may be taken at either a Navy environmental and preventive medicine unit or Naval regional medical center preventive medicine service, and completion of training must be documented. Certified instructors must use and maintain up-to-date, standard Navy lesson plans in their training programs. Instructors must be recertified every 5 years and are authorized to sign the Foodservice Training Certificate, NAVMED 4061/1.

Personal Hygiene

The group of principles and rules designed to promote personal health and cleanliness is known as personal hygiene. The following procedures should be used to ensure personal cleanliness.

TAKE DAILY SHOWER OR BATH.—Maintain a high degree of cleanliness by thoroughly soaping and rinsing the body to remove dirt, perspiration and bacteria. This practice improves circulation, appearance, and health, and is the foundation of personal hygiene. Frequent washing of hair is mandatory. Keep teeth clean by brushing at least twice daily, but preferably after each meal.

WEAR CLEAN GARMENTS.—Wear clean inner and outer garments. Germs are harbored in clothing as well as on skin surfaces, and diseases are likely to be transmitted. Caps (or hairnets for women) completely covering the hair must be worn at all times when working with food. Keep hair trimmed for neat appearance. Change clothing and aprons soon after soiling.

WASH HANDS BEFORE, DURING AND AFTER WORKING WITH FOOD.—Provide plenty of hot and cold running water under pressure. Soap and paper towels with adequate waste receptacles must be available. Continuous rolled paper toweling that is sanitary may be used if it is approved by the National Sanitation Foundation (NSF) Testing Laboratory or meets equivalent standards, but use of such toweling must be supervised.

Thorough washing of hands with hot soapy water to remove soil and contamination before commencing work is mandatory. After each visit to the toilet, all food handlers are required to scrub

hands and nails. When interruptions occur during routine duties in the galley, personnel are required to wash their hands before resuming work. Frequent washing of soiled hands during work is also essential. Never wear an apron to the toilet or washroom.

Hands are the most common vehicle for transmitting germs. Personnel shall keep fingernails closely clipped, trimmed, and cleaned underneath and around cuticle. Cleaning is effective only with soaps or detergents and warm water. Unless clean single-use towels or other satisfactory hand-drying devices are provided, the benefits of frequent hand scrubbing are completely nullified.

PROHIBIT USE OF TOBACCO—Smoking in food preparation, serving, or dishwashing areas is prohibited. The use of tobacco while preparing or serving food may contaminate the fingers and hands, with saliva and may promote spitting and coughing, which transmit disease organisms present in the saliva to food or food-contact surfaces. If smoking areas away from the galley are provided, personnel should use these designated areas but thoroughly scrub their hands before resuming work to prevent food contamination.

DEVELOP SANITARY WORK HABITS—A wide range of communicable diseases and infections may be transmitted by food handlers to other personnel, through contaminated food and careless practices.

Some of the desirable work habits that personnel should develop to prevent personal contamination areas are as follows:

- Spoons, knives and forks should be picked up or touched only by their handles
- Cups, glasses and bowls should be handled so that fingers and thumb do not contact inside surfaces or lip-contact surfaces
- Portable-and fixed-food preparation equipment should be stored so that they require minimum handling by personnel. Improper storage ruins the effect of sanitizing, and excess handling will introduce contaminating material
- Disposable dinnerware must be handled and dispensed to prevent contamination of surfaces that come in contact with food or with the mouth of the user
- Tongs, picks, spatulas, scoops, dipping spoons and other suitable utensils must be used in such a manner to keep manual contact with food at a minimum.

REPORT PERSONAL ILLNESS AND ALL MINOR INFECTIONS. — Boils and sore throats are sources of bacteria that can cause severe food-borne diseases. When ill, report it and make arrangements to be relieved of duty. Sores, rashes of any kind, pimples, or other skin eruptions as well as cuts should be reported and medical aid solicited as soon as possible. Both supervisory personnel and operators are responsible for notifying medical personnel if a disease is suspected.

APPLY PROFESSIONAL TRAINING AND TECHNIQUES. — All personnel must be alert to the hazards associated with speedup methods and shortcuts to washing and sanitizing operations. Techniques of sanitizing— including times, temperatures, and routines—should be memorized and applied. The effectiveness of sanitation is directly related to the competence and cooperation of foodservice personnel.

COMPLY WITH SANITARY REGULATIONS.—Public health ordinances and regulations imposed by the Bureau of Medicine and Surgery (BUMED) must be observed in day-to-day foodservice

operations. Recognized standards of sanitation embracing accepted public health principles are prescribed by these sources and administration of regulations at each activity will be enforced.

PRECAUTIONS

Most food-borne disease outbreaks are due to four factors:

(1) Preparation of food too far in advance.

(2) Poor refrigeration of food.

(3) Careless handling of food.

(4) Failure of personnel to follow good personal hygiene habits.

The following precautions should be observed in preparing and serving food:

- Food should be served promptly after it is prepared
- Any food that has been ground or chopped and is to be cooked later or incorporated in a prepared dish must be refrigerated immediately. Such ground or chopped food should be refrigerated until cooked; once cooked, they should never be saved as leftovers. When food is ground, an increase in the area of contamination and growth of harmful bacteria results. When chilled foods are ground, the grinding process warms the food to the point where bacteria growth may start
- If you are using individual serving containers, do not put ice on top of containers
- All fresh pork roast products must be cooked to an internal temperature of 165°F for 15 seconds or above. Never serve raw pork products
- Poultry shall be cooked to an internal temperature of 165°F for 15 seconds. Roast shall be cooked to an internal temperature of 145°F for 4 minutes
- Ground meals shall be cooked to an internal temperature of 155°F for 15 seconds
- Steaks / pork chops / seafood and eggs shall be cooked to an internal temperature of 145°F for 15 second
- Keep foods covered at all times except during actual preparation and serving
- Palletize all subsistence items in storage spaces (six inches off the floor and four inches away from the wall) to facilitate cleaning and air circulation
- Keep all worktables and benches clean at all times
- Store food off the deck
- Keep food preparation utensils, meat grinders and other similar equipment clean and handle them properly. Food that comes in contact with equipment that is contaminated becomes contaminated also
- Wash your hands before, during and after preparing food
- Do not cough, sneeze, or talk over food while it is being prepared or served

- Never smoke while you are preparing food. Saliva can be dropped on foods very easily when you are smoking
- Never eat or drink in food service preparation areas
- Keep fingers away from the mouth, lips and face
- Keep bare-hand contact with foods during preparation to a minimum. Handle foods as little as possible
- Use tongs or single use gloved hands to handle butter, doughnuts, bread and other similar items of food (any ready to eat foods)
- Handle foods as little as possible
- Use tongs to handle butter, doughnuts, bread and other similar items of food. Do not use your hands.

Inspections

To make sure all foodservice division rules and directed procedures are being followed, the food service officer and/or designated assistants should make both unexpected daily inspections and thorough weekly inspections of all foodservice personnel, spaces, and operations. As an aid to conducting an inspection, the following items should be checked:

- Food handlers. Clean personal appearance that includes clean working uniform (including apron and cap), haircut, clean shave, close-clipped fingernails, head covering, neatness in dress and absence of cuts, sores, acne, or other indications of skin disorders on exposed parts of head, hands, arms and wearing no unauthorized jewelry (only a plain band ring is authorized for wear)
- Galley. Deck drains, sinks and grease traps must be clean and free of any dirt and food particles. Inspect for insect and rodent infestation
- Ranges and grills. Clean and free from grease (ovens, unit cover, drip pan, range grease receptacles, hood and hood filters)
- Can opener and base. Clean and free from accumulated grime and food particles
- Deep-fat fryers. Clean, coils clean, basket clean and in good condition
- Steam-jacketed kettles. Clean under cover and cover-exhaust opening; lids and spigots easily removable without tools for cleaning. Drain clean and free of food particles
- Ovens. Clean and free of burned food and food particles
- Sinks and galley utensils. Clean and neatly stored; steel and plastic sponges (but not steel wool) used for cleaning galley utensils are clean and free of food particles, air dried and neatly stored
- Mixing machines and attachments. Clean and in good operating condition, ice-cream machine, meat and vegetable grinders and attachments, and proof boxes
- Cutting boards. Clean and dry, no evidence of cracks, scoring or pitted surfaces
- Vegetable-preparation room. Inspect for cleanliness of deck, drains, traps, and sinks. Look for any sign of insect and rodent infestation

- Potato-peeling machine. Dismantled (cover and disk removed), wash-water strainer clean and in good condition
- Slicing and dicing machine. Dismantled, clean (parts oiled if not in use), and in good condition
- Dining area. Inspect for cleanliness of decks, tables, benches, serving tables, coffee urns, milk dispensers, warming ovens, water fountains, and ice machines; all gear clean and neatly stored. Look for insect and rodent infestation
- Scullery. Decks and gear must be clean. Dishwashing machine dismantled, clean and free of odors, spray pipe clean, racks clean and in good condition, curtains clean and in good condition, thermometers operating properly, and trash and garbage cans clean and tightly covered The scullery machine must be descaled every 30 days
- Garbage and trash room. Clean, orderly and free from obnoxious odors; cans clean and tightly covered. Inspect for insect and rodent infestation

The 4-Hour Rule

Protein foods that are not served immediately after they are cooked should either be chilled to temperatures of 41°F or lower (but not frozen) or held at 135°F or higher. Protein foods include meats, fish, poultry, gravies, meat stocks, soups, eggs, custards, cream fillings and milk. Growth of harmful bacteria and the development of toxins (poisons) formed by the bacteria occur rapidly in cooked protein foods during holding at temperatures between 41°F and 135°F. Cooked protein foods that have been held at temperatures between 41°F and 135°F for more than 4 hours will be considered unfit for consumption and must be destroyed. Label all food items once preparation is complete to determine the four hour window.

This principle is known as the 4-hour rule. If the product is refrigerated at intervals and then permitted to warm up, the total time of the various periods between 41°F and 135°F must not be more than 4 hours. Protein foods composed of ingredients that are hand-peeled, hand-sliced, or hand-diced after they are cooked should never be used as leftovers; the 4-hour limit between temperatures of 41°F and 135°F is usually taken in preparing, chilling and serving the food. These foods include potato, chicken, macaroni, shrimp and egg salads and similar items. Hand preparation not only increases the chance of contamination, but also generally increases the length of time that these foods are held at room temperatures. In addition, it is dangerous to return opened jars or bowls of mayonnaise and cooked salad dressing from the salad bar to the refrigerator for reuse at a later meal. The danger is because of the danger of miscalculating the total time that elapsed from the time that these salad dressings were held at temperatures between 41°F and 135°F.

Holding Temperatures

Holding temperatures are of utmost importance. Food held at temperatures that are too high or too low can ruin both the taste and the appearance of food as well as increase the risks of foodborne disease.

HOT FOODS—The holding temperature (internal product temperatures) of hot foods held on a serving line should be maintained above 135°F.

COLD FOODS—Keep cold foods (internal product temperatures) such as salads, potato salad combinations and ham plates cold by setting them on ice or on refrigerated salad bar units maintained between 34°F and 40°F.

BEVERAGES—Beverages should be served hot or cold as applicable. As with food, the quality depends on proper preparation, holding and dispensing.

Leftovers

When leftovers or warm foods are chilled, care must be taken to ensure prompt and thorough chilling (41°F or below) to the center of the food mass. Foods that are to be refrigerated should be placed in shallow pans to a depth of not more than 3 inches and must be covered with lids or waxed paper. Do not put leftovers in large, deep pans. Chilling the food may take so long to reach the center of the food mass that harmful bacteria have sufficient time to grow, and toxins have time to develop. Guard against any procedure that might delay cooling. Place foods to be chilled in the chill box immediately. Do not save leftover food for more than 24 hours. Freezing of leftovers is prohibited. Foods composed of ingredients that have been peeled, sliced, or diced by hand after cooking must never be used as leftovers since the 4-hour limit between temperatures of 41°F and 135°F is usually taken up in preparing, chilling and serving the food. To prevent miscalculations in the length of time leftovers have been stored, all leftovers must be labeled with the date and time of preparation.

Frozen Foods

Frozen foods should be thawed in the refrigerator or cold running water. Freezing breaks down tissue and, therefore, foods can be invaded by germs more rapidly. Once foods are frozen and then thawed, they must not be refrozen. If not eaten, they should be stored under 41°F.

Milk and Milk Products

Milk and milk products and other protein foods frequently transmit infectious diseases to humans because of their rapid rate of perishability. Strict surveillance of all handling procedures from cow to humans is necessary to prevent contamination and possible milk-borne diseases.

When procured by Navy and Marine Corps activities, milk and milk products must conform in all respects to either federal or military specifications (an approved source). The perishability of such products is a most important factor, thus strict compliance with all sanitary requirements is mandatory.

Delivery inspections of dairy products are normally conducted by personnel attached to the receiving activities. These inspectors must make sure milk and milk products are from approved sources and delivered in containers that are in good condition and properly sealed. They must make sure the temperature of the product on delivery is 45°F or less or follows the current Defense Supply Center Philadelphia (DSCP) contract.

Of prime importance to medical and foodservice personnel is the maintenance of recommended temperatures in storing, (41 or below), dispensing (32-41°F) and enforcing approved sanitary methods in the handling of such products.

Fresh Fruits and Vegetables

Fresh fruits and vegetables should be washed thoroughly under running water to remove any particles of dirt or to remove poisonous insect sprays. Green vegetables of uncertain origin should be suspected of being contaminated with pathogenic organisms. They should be chemically sanitized by immersion for at least 15 minutes in a 100-ppm (parts per million) available chlorine solution, or 30 minutes in a 50-ppm available chlorine solution, or other approved method. Then they should be thoroughly rinsed with potable water before they are cooked or served. Head items such as lettuce, cabbage, or celery must be broken apart before they are sanitized.

Canned Products

Canned foods that appear abnormal in odor or appearance should never be eaten or even tasted, but should be discarded. When you are inspecting canned meats, fish, poultry, vegetables, fruit and juices, the following factors should be considered:

- CAN LABELS—Check to make sure contents and processing date are stamped on the end of the container or on the label
- CAN EXTERIOR.—The exterior of the can should be examined for general appearance, dents, swelling, rust and pinholes. Cans having severe dents that cross either the side or end seams or that crinkle the side, should not be used. Rusty cans will not be used. Cans with rust that cannot be easily wiped off with a clean cloth will not be used
- CAN INTERIOR.—Contents should be removed, the can rinsed and the interior examined for pinholes against a strong light. If pinholes are present, contents should be discarded
- CONTENTS—Contents of can should be examined for characteristic odor and appearance of the product
- REJECTION OR SURVE.—Except for coffee and molasses, foods contained in cans displaying the following conditions are unsatisfactory and should be surveyed and disposed of:

Pinholes-Tiny holes caused by action of food acids during prolonged storage

Swells (or swellers). Both ends of cans bulge outward because of bacterial action and gas production. Ends do not yield to finger pressure. (Molasses may bulge in tropical areas, but this condition is not dangerous and the product need not be rejected for this reason).

Springers. One or both ends bulge outward because of bacterial action and gas. However, this bulge will yield on pressure and spring back to bulge condition on release. Springers or swellers of coffee containers, however, usually indicate a properly sealed container that has merely retained natural coffee-bean gases.

Flippers. Both ends are flat, but one end will bulge out ward when the opposite end receives pressure. This condition is caused by either bacterial action or chemical action resulting in gas production.

Spoiled or Damaged Food Products

Several precautions eliminate the factors that cause spoiled or damaged food items. These precautions include inspection for quality upon receipt, proper storage and handling and maintenance of required temperatures relative to each respective phase of the operation. The absence of any one of these precautions may encourage food spoilage and damage.

The following hazardous material should be disposed of accordingly, using the applicable survey procedures outlined in NAVSUP P-486:

- Cans in unsatisfactory condition or cannot be surveyed
- Food products with spoilage or damage indicated by offensive odors, presence of slime, abnormal color, or other evidence of deterioration

- Food items adulterated by easily recognizable foreign material, such as metal, glass, dirt, or insects.

Do not attempt to taste or cook food in these states. It is safe to observe the old saying, "When in doubt, throw it out." 'The risk of food-borne illness must be avoided. After any occurrences of spoiled or damaged food, corrective actions must be provided and measures must be designed to prevent future occurrences.

KEEPING UTENSILS and EQUIPMENT CLEAN

All phases of sanitation in a General Mess are important. However, one of the most important is the proper cleaning and sanitizing of equipment (including trays, dishes and other dinnerware) used for preparing, handling, cooking and serving food.

Dishes may be washed by hand or by machine. Whatever the method, either the final results may be excellent or they may be poor, depending upon how conscientiously you apply your knowledge and skill in using the equipment and materials provided. The best equipment and detergents will not do a good job of dishwashing if used improperly.

Types of Soil

Unless the galley equipment and utensils are thoroughly cleansed, food particles in which bacteria may grow will remain on them. These food soils are divided into several distinct types:

- Freshly deposited soil. The soil that remains immediately after the equipment or utensil has been used
- Thin film. The soil that remains as the result of ineffective cleaning, following a flushing with water. Thin films are not easily seen and they are capable of sustaining germs
- Built-up deposits. The result of repeated ineffective cleaning methods causing a day-by-day accumulation of soil
- Dried deposits. Accumulations that result from drying action and formation of a heavy crusty deposit
- Baked deposits. Baked deposits are deposits that are baked onto equipment and that have become difficult to remove.

Removing Stubborn Soils

The Navy procures the correct type of detergent to be used in washing food preparation utensils and equipment. Hot water also provides temperatures that increase the chemical activities of the various ingredients in properly compounded detergents. Friction is an important part of cleaning. The required friction may be applied by brushing with approved brushes or by strong flushing, as in dishwashing machines. A hard abrasive should never be used on any metal surface. This results in scratches that provide lodging places for soil. It is recommended that pots and pans, cooking utensils, and other such items be presoaked to loosen any food clinging to the utensil. Then, they should be washed using the proper detergent compound and hot water. A detergent increases the effectiveness of the water as a cleaning agent. The washed pots and pans must be rinsed with warm water at 120°F to 140°F, and then sanitized for 30 seconds in hot water of 171°F or for at least 1 minute in an approved chemical sanitizing solution such as the standard stock chlorine-iodine type. Once washed,

sanitized and air dried the clean pots and pans should be stored, bottoms up, in clean racks. Otherwise, the effort spent in washing and sanitizing them is wasted.

Hand Dishwashing

Thoroughly cleaned and sanitized food service dishware, utensils and equipment not only contribute to the aesthetic quality of a food service facility, but more importantly, prevent the transmission of disease-producing microorganisms that may be found on such utensils and equipment. Therefore, the importance of thorough cleaning and sanitizing cannot be overemphasized.

Utensils and equipment including removable equipment components may be washed by the manual or machine method; however, when available the machine dishwashing method is preferred. Whichever method is used, the final results will depend on the supervision, knowledge, skill and conscientiousness of the personnel doing the dishwashing and the equipment and materials provided for their use. All dishwashing personnel and their supervisors must be alert to the hazards associated with so-called "short cuts" and slipshod procedures for dishwashing and sanitizing.

A sufficient supply of dining gear must be available to prevent the recycling of inadequately cleaned, wet or hot dishware and utensils.

Care will be taken to prevent contamination of clean and sanitized dishware and utensils by eliminating the cross handling of soiled and clean items and protecting the clean items from splashes or aerosols. Dishwashing areas must be designed and equipment placed so that the direction of flow of dishware and utensils is from the soiled areas (scrapping and preflushing) to clean areas (drying area) to minimize the possibility of contamination from the soiled articles. Multiple rack dishwashers must be installed so that the intake/discharge ends of the machine are oriented fore and aft aboard ships. This is to prevent cross contamination of rinse water with wash water by the ships roll characteristics.

Adequate sanitary storage space will be provided to protect the cleaned and sanitized dishware and utensils from contamination resulting from unnecessary handling, dust and splashes.

Correct and approved procedures will be discussed in the following paragraphs. Additional information is contained NAVSUP 486.

Manual Dishwashing

Equipment

A three compartment deep sink is basic for proper manual dishwashing procedures. If a three compartment sink cannot be provided, a two compartment sink and/or other containers, e.g., large kettle, may be used provided adequate provisions are made to accomplish the basic manual dishwashing procedures including scraping and preflushing, washing, rinsing and sanitizing.

Accessory equipment and supplies required for proper manual dishwashing include a booster heater for the final rinse sink; thermometers for monitoring the final rinse water temperatures, a drip and drain basket for the final rinse, approved brushes, hand dishwashing compounds and sanitizing agents. In addition adequate facilities are required for scraping and prefiushing, stacking soiled dishware and utensils, and air drying cleaned and sanitized items.

Procedures

Manual dishwashing entails four separate evolutions including scraping and preflushing to remove gross soil, washing in detergent and warm water to remove soil and grease, rinsing to remove residual detergent and grease, and sanitizing to eliminate pathogens.

Scraping and Preflushing

Scraping and preflushing is accomplished to remove residual food matter which would pose an excessive organic load on the wash water and detergent. Gross food and trash are removed with a rubber spatula, approved brush or gloved hand, and deposited in a garbage receptacle. The surfaces of the dishware and utensils are then flushed with warm water (about 110 degrees F to 120 degrees F) to remove excess soil and grease. This can be accomplished in a warewashing machine with a prewash cycle, under a running faucet or in a deep sink.

If the latter method is used, the sink must be emptied and cleaned prior to its use for washing or rinsing.

Flatware (knives, forks and spoons) should be soaked in warm water (120 degrees F to 125 degrees F) containing 3 ounces of hand dishwashing compound per gallon of water as soon as possible after they are collected. When the presoak water becomes dirty or greasy it should be changed.

Experience has shown that the capacity of the wash water to clean dishware and utensils increases significantly when thorough scraping and preflushing is accomplished.

Damaged flatware should be segregated for proper disposal at this point.

Washing

Manual dishwashing is accomplished in a clean deep sink or other suitable container which is filled with warm water maintained at a temperature of not less than 110 degrees F, or the temperature specified on the label of the hand washing detergent or other cleaning agent. The cleaning agent is added according to the label. The amount of water in the sink or container must be known in order to mix the correct concentration. Dishware and utensils should be individually hand washed with an approved scouring pad or other suitable implement. The wash water should be changed when it becomes dirty. This will be evident by a lack of suds or the presence of a thin grease film on the water's surface.

Glassware should be washed first using approved glassware brushes followed by flatware, dishes, and pots and pans, in that order, to minimize the frequency of water changes during the dishwashing operation.

Pots and pans should be washed thoroughly inside and out by means of a scrub or scouring pad. Burnt food and difficult to remove stains can be removed by using a small amount of scouring powder and rubbing in a circular motion until the stain is removed.

Rinse. The purpose of the rinse is to remove cleaning agents and food residues with potable water and prevent carryover into the sanitizing rinse. It is accomplished in the second deep sink which contains clean warm water (120 degrees F to 140 degrees F is generally recommended). Some detergent-sanitizers are used in both the wash water and the rinse water, check the label and mix as directed. The rinse water or detergent-sanitizer solution should be changed when suds and/or grease begin to accumulate on the surface.

Sanitizing Rinse. Dishware and utensils are sanitized in the third deep sink or other container by immersion for at least 30 seconds in clean hot water at a temperature of at least 171 degrees F, or for at least 1 minute in an approved chemical sanitizing solution such as the standard stock chlorine-iodine type. When chlorine chemical sanitizers are used, the immersion time may be reduced to at least 10 seconds provided one of the following combinations of pH, water temperature and concentration of free available chlorine (FAC) is used. See Table 5-1 below.

Drying and Storage. Dishware, glassware, pots, pans and utensils must be air dried and stored in a manner which protects them against contamination.

Maintenance. The dishwashing area and equipment must be kept in good repair and cleaned before the operator leaves the area.

Table 5.1 Methods to Reduce Chlorine Sanitizing Rinse Time to 10 Seconds

Minimum Temperature	Chlorine Concentration	
Degrees F	pH 8.0 or less	pH 8.1-10.0
120	23 ppm	25 ppm
100	50 ppm	50 ppm
75	50 ppm	100 ppm
55	100 ppm	100 ppm

The equipment provided for manual dishwashing varies from a one-compartment sink to the preferred three-component sink. A remote dial thermometer and a booster heater should be installed under the final rinse compartment. Regardless of the type of sink on board your ship or station.

Machine Dishwashing

Equipment

Sanitary standards for dishwashing machines must not be less than those promulgated by National Safety Foundation (NSF). Equivalent to NSF will be interpreted and understood to mean equivalent in all respects, including: comprehensive evaluation and testing of products by qualified professionals, unannounced inspections of production facilities, periodic re-evaluation of products, uniform interpretation of the standard, continuing objective evaluation against new revisions of the standard, enforcement procedures to assure against misuse of a listing or registered mark, free published listing of accepted products, field investigation procedure available on request and a formal appeals process for evaluation to the standard or enforcement procedures. More extensive information may be obtained from the current NSF Standard No. 3, Commercial Spray Type Dishwashing Machines. NSF approved thermometers on the dishwashing machines will be maintained in good operating condition at all times and must be verified to ensure accuracy by preventive maintenance personnel during routine servicing and whenever a thermometer malfunction is suspected but not less than

once per month. The sensing element of the final rinse thermometer must be located to indicate the temperature of the water at the spray arms or manifolds. Each temperature gauge must be clearly marked to indicate the required temperature range. The low temperature shut-off switch that prevents the machine from running when proper water temperatures are not obtained must not be bypassed to allow the machine to run. Steam injection for heating dishwater in dishwashers deep sinks and serving lines is prohibited.

Dishwashing machines are classified as single or multiple tanks and stationary rack or conveyor type. They are designed to remove physical soil from all surfaces of dishware or utensils and sanitize them either by the application of hot water or by the application of approved chemical solutions to the surfaces of the dishes or utensils. Operating specifications for each type of machine are listed in Table 5-2.

The effectiveness of dishwashing machines is dependent on several factors:

Scraping and Prewashing - These operations are very important because they reduce the organic load on the dishwashing machine, thus increasing its efficiency. Scraping and prewashing also remove large portions of soil and grease which result in more efficient machine operation.

Racking - The proper placement of dishware and utensils in the dishwasher assures that all the surfaces will be exposed to the spray jets of wash and rinse water.

Timing - Each stage of the dishwashing cycle is timed to provide the optimum exposure required to remove physical soil and sanitize the dishware and utensils.

Volume and Velocity of the Water - The volume and velocity of the wash and rinse water affect the degree of soil removal by providing the necessary force to remove soil from the dishware and utensil surfaces and carry it away. Therefore; it is important that the spray arms and nozzles be kept free of obstruction to ensure dishware and utensils are exposed to the proper washing and rinsing action.

Temperature of Water - In general, an increase in temperature of the wash water up to 150 degrees F aids in the removal of soil by decreasing the strength of the bond between the soil and the dishware surfaces increasing the solubility of the soil, and increasing the reaction rates. In addition, the cumulative effect of the temperatures of the wash and rinse cycles are necessary to obtain a minimum temperature of 161 degrees F on the surface of the utensil to assure sanitization. Water temperatures less than those prescribed in Table 5-2 for wash or rinse water will result in ineffective washing and sanitizing.

Dishwashing Agents - Dishwashing agents (detergents) facilitate soil removal by attacking the water insoluble matter which occurs on dishware and utensils, such as mineral deposits, animal and vegetable fats and fibrous matter. In order for the cleaning agent to be effective, it must be compatible with the chemistry of the wash water, e.g., hard or soft water.

Procedures

Scraping and Preflushing. Dishware and utensils must be scraped and preflushed. Some machines are equipped with an automatic preflushing function. In this event the dishware and utensils still require manual scraping before being placed into the machine.

Sorting and Racking. Dishware and utensils should be sorted according to size and shape prior to racking. Separate racks must be used for articles of different types, e.g., cups, plates, bowls,

and glasses will not be placed in the same racks. Similarly, like items must be placed together on reckless conveyor type machines. Items must be racked in a manner that allows the surfaces to be exposed to the water spray and permits complete draining, overcrowding and haphazard racking must be avoided. Flatware will be individually scrubbed with a brush after presoaking to remove remaining food residues and placed in separate cylindrical shaped containers according to type, e.g., forks with forks, etc., with the eating surfaces facing up.

Table 5-2. Time, Temperature, and Water Volume Requirements for Dishwashing Machines

	Wash			Rinse			Final Rinse at 20 PSI*		
Type Machine	Vol H2O Gal.	Min.Exposure Sec.	Min/Max Temp F.	Vol H2O Gal.	Min.Exposure Sec.	Min/Max Temp F.	Min Vol H2O Gal.	Min. Exposure Sec.	Min/Max Temp F.
Single Tank Stationary Rack									
16 x 16	60	40	150-160	--	--	--	1.15	10	171/195
18 x 18	75	40	150-160	--	--	--	1.44	10	171/195
20 x 20	92	40	150-160	--	--	--	1.73	10	171/195
Single Tank Stationary Rack, Single Temp									
16 x 16	60	40	165	--	--	--	14.7	30	171
18 x 18	75	40	165	--	--	--	18.6	30	171
20 x 20	92	40	165	--	--	--	23	30	171
Single tank Stationary Rack, Chemical Sanitizing									
	80 includes sanitizing rinse	--	120	--	--	--	80 including wash vol.	--	120
Single Tank Conveyor, 20 " Width									

	3 Per lin. inch co-veyor	15	160	--	--	--	6.94 min.	Max. Conv. Speed 7' per min.	171/195
Multiple Tank Conveyor, 20" Width									
	1.65 per lin. inch con-veyor	7	150/ 160	4.65 per lin. inch con-veyor	7	160-180	4.62 per min	15' per min. max. speed	171/195

*Pressure not less than 15 psi, not more than 25 psi, **Temp. at the manifold

Machine Operation. The dishwashing machine should be operated in accordance with the manufacturer's instructions. Care should be taken to ensure that the proper amount of appropriate dishwashing compound and rinse additives are used, the spray nozzles are not clogged, prescribed water temperatures and pressures are maintained, and the final rinse mechanism is operating satisfactorily.

Drying and Storage

When dishware and utensils are washed and rinsed at the prescribed temperatures, and with proper use of machine dishwashing compound and drying agents, the drying time of properly racked items in an adequately ventilated room is a few minutes.

A sufficiently large clean table area and adequate number of racks will be provided to permit sufficient holding time to allow the dishware and utensils to air dry before they are unloaded. The racks should be shaken to dislodge entrapped water and facilitate complete drying. The use of towels for drying dishware and utensils is prohibited.

The dishware and utensils must be inspected at this point for cleanliness and the presence of residual detergent or grease films. Inadequately cleaned or filmy items will be rewashed and the cause of the occurrence investigated. Proper illumination in the space where dishware and utensils are air dried and inspected is of the utmost importance and must meet or exceed applicable illumination requirements.

Care must be taken to avoid handling the food-contact surfaces of dishware and utensils once they have been cleaned and sanitized.

All dining gear and cooking utensils must be stored off the deck and will be protected against contamination from dust, splashes, aerosols and handling. Storage of dishware and utensils is prohibited in sculleries which have approved salt water garbage grinders (unless a separating deck to overhead partition is provided to isolate clean gear), locker rooms, toilet rooms, toilet room vestibules, garbage rooms, mechanical rooms, leaking automatic fire sprinkler heads, under exposed sewer lines, leaking water lines, or lines on which water has condensed.

Maintenance.

The dishwashing machine will be cleaned thoroughly at the end of each meal period following the instructions in the operating manual. Disassembly of spray arms, removal of scrap trays and spray curtains and a thorough cleaning inside and out after each period of use helps ensure that the machine will operate effectively at all times. The dish carts drain boards, braces, sinks and brushes will also be cleaned thoroughly. The dish tables (and conveyers) will be cleaned using detergent and brushes and rinsed with fresh water. The tables (and conveyers) will be wiped with a sanitizing solution. The shelves, legs, deck drains, decks and bulkheads must be cleaned daily to avoid accumulation of grease, slime and food particles. Before the operator leaves the area, all equipment must be clean and ready for the next operation.

Inspection of Dishwashing Machines. The task of determining whether a dishwashing machine is effectively washing and sanitizing utensils is an involved process, particularly without sophisticated laboratory instrumentation; however, it can be satisfactorily accomplished by the procedures outlined below:

- Determine that the dishes are visibly clean
- Establish if personnel operating the machine are adequately trained and are performing their functions correctly including scraping, preflushing, racking, and sorting
- Determine if the proper dishwashing compound and drying agents are being correctly used and that adequate supplies are available
- Use a calibrated thermometer (e.g. bimetallic, maximum registering, pyrometer) to determine the temperatures of the wash water and power rinse water (when appropriate) by immersion in the water contained in the respective tank(s). The water should be within the temperature ranges given in Table 5-2. If the machine temperature gauges do not agree with the calibrated thermometer within + 3 degrees F the gauges must be calibrated or replaced. As a temporary measure, the corrective differential (i.e., the difference between the calibrated thermometer and the machine gauge) should be displayed on or near the temperature gauge in error until the machine gauge is repaired.

The final rinse temperature is more difficult to determine since it is based on the temperature of the water at the final rinse manifold. The final rinse temperature can be ascertained by one of the following procedures:

- Remove the final rinse thermometer or sensing unit from the inlet manifold. Compare the machine thermometer or sensing bulb with a calibrated thermometer by immersing both in a container of hot water (171 degrees F to 195 degrees F). If the machine gauge is in error by more than + 3 degrees F, it must be calibrated or replaced and the corrective differential temporarily posted. With this information, the final rinse temperature can be determined by observing the machine gauge while the machine is operating

- Place a calibrated thermometer directly under the final rinse spray to measure the water just as it leaves the spray nozzle. This can be accomplished by attaching a calibrated thermometer with rubber bands to an extension device such as a broom handle and placing the thermometer directly under the spray nozzle while it is operating. This may not be possible on single tank stationary rack machines unless a pyrometer is used. *Caution!* Care must be exercised in order to prevent injury! A maximum registering thermometer or a pyrometer are the best instruments to use for this procedure; however, other calibrated thermometers may used. The temperature of the final rinse spray at the spray nozzle, except for single tank stationary rack single temperature and chemical sanitizing machines, must be at least 171 degrees F.

An indirect method of assuring the final rinse temperature is at or above 171 degrees F is to pass temperature sensitive tape which indicates 171 degrees F or a maximum registering thermometer through a complete wash and rinse cycle. The temperature sensitive tape (171 degrees F) should be attached to a clean dry plate and the maximum registering thermometer can be attached with rubber bands to the outside of an inverted glass. If the tape changes color from silver or white to black or the maximum registering thermometer registers 171 degrees F or above and the wash and power rinse temperatures are within the proper range, the correct final rinse temperature can be assumed:

- Check that all the spray nozzles are properly aligned and unobstructed by debris or lime deposits and that all the curtains are in place
- Determine that the flow pressure of the final rinse is 20 (+5) pounds per square inch. This is accomplished by observing the pressure gauge on the final rinse line
- Assure that the timing of the wash and rinse cycles or the speed of the conveyor is within the manufacturer's specifications which may be found on a permanent type data plate affixed to each machine in a conspicuous location. This information may also be found in Table 5-2
- Dishwashing machines which use chemical agents to sanitize the utensils must be evaluated to determine if a sufficient concentration of disinfectant is being applied to the utensil surfaces. Facilities must have on hand test kits or other devices which accurately determine the concentration of the sanitizing solution being used. The concentration of the sanitizing solution must be tested at frequencies which ensure correct concentrations throughout each machine use period. In addition, determine if there is an adequate supply of the sanitizing chemical on hand. Also determine if conditions allow complete air drying
- Observe whether or not the dishwashing machine and equipment are thoroughly cleaned after each meal period
- Determine if proper safety precautions are observed during dishwashing operations.

Alternative Manual Methods. When cleaning of sinks or warewashing machines is impractical, because the equipment is too large or is fixed, cleaning will be done by alternate methods as discussed below:

- Disassemble as necessary to permit access to all parts
- Scrape or rough clean to remove gross food particle accumulation
- Clean the equipment using a high pressure detergent spray, a line pressure spray detergent foam or a swabbing/brushing procedure using a detergent solution
- Rinse the washed equipment with potable water or detergent-sanitizer solution

- Manually swab or pressure spray the equipment with the concentration of detergent-sanitizer or chemical sanitizer specified on the label.

SANITATION OF FOODSERVICE SPACES

Galleys, the bakeshop, vegetable preparation areas, food storage and refrigeration facilities and any other facilities or equipment in which food is prepared, served, or dispensed constitute the total physical plant of the foodservice operations. It is mandatory to keep these spaces in sanitary condition at all times.

DECKS, BULKHEAD and OVERHEADS

Regular after-meal cleanup is necessary to prevent an accumulation of filth, and frequent in-between cleaning is required if deck cleanliness is to be maintained at a peak standard. When food is spilled, it should be wiped up immediately.

No attempt should be made to sweep down decks and dining areas during food preparation and service, as dust rises in the air and will fall on foods and worktables. Pick up wastes and deposit them in proper receptacles.

Vacuum cleaning is the recommended method for dry cleaning bulkheads and overheads.

VENTILATION SYSTEM

Good air circulation is a basic requirement of proper sanitation because it reduces condensation of steam and minimizes heat, vapors, smoke, fumes, odors and soiling. Mold and bacterial growth are inhibited whenever there is ample, dry, clean air.

Prevent grease from accumulating on hood appliances. Accumulations of grease can drip either into food being prepared or onto surfaces of equipment where contamination of food is possible. Filters should be removed and soaked in a hot (180°F-194°), strong detergent solution. Scrub with a brush. Rinse under running water or by applying steam from a hose. Removable filters may be run through the dishwashing machine.

LIGHTING SYSTEM

Sufficient lighting in all areas of food storage, preparation, and service, and in scullery operations, is a fundamental requirement of proper sanitation and safe working conditions. Grease, dirt and vermin a more easily detected and corrected where there is ample light.

Routine cleaning of light fixtures and light bulbs contributes to adequate lighting and eliminates the accumulation of dirt and grease film.

STORAGE AREAS

Fresh and frozen food items are perishable and must receive proper handling in transit and storage to reduce risk to the health and welfare of personnel who prepare and eat foods. During loading and unloading on docks, piers, or on board, you should keep areas as clean as possible. Long exposure to weather will hasten spoilage. Daily checks on the sanitation of dry, freeze, and chill spaces are essential. Mold and decay go hand in hand with poor housekeeping. Decks, deck gratings,

bulkheads and overheads should be cleaned, sanitized and aired as often as possible. Cleaning and defrosting of refrigerated spaces should proceed when stocks are low.

Cleaning gear (for example, swabs and brooms) and cleaning supplies (for example, detergents, disinfectants, and other toxic materials) should be stored in areas specifically designated for their purpose. These items should not be stored in food storage cabinets or on food storage shelves.

Dressing Rooms, Lockers and Toilet Facilities

Street clothes should never be worn in the galley. Adequate, clean and orderly facilities should be provided for personnel to keep and change clothing to be worn when performing routine duties in foodservice operations. Adequate space should be provided for hanging up these pieces of clothing because they can contaminate food, food equipment and food preparation surfaces. Dressing rooms or designated areas for changing and storing clothing must be located outside the areas where food is stored, prepared and served. Dressing rooms and lockers must be clean and orderly at all times.

Conveniently located toilet facilities must be accessible to personnel at all times. These areas must be adequately equipped with proper waste receptacles, toilet paper and an approved hand-drying device or sufficient disposable towels. Heads should be located within or immediately adjacent to toilet areas as well as within food preparation areas. These heads must be kept in a clean and orderly appearance. An authorized soap dispensing system and hot and cold running water are also required for use by personnel.

Garbage and Trash Disposal

The method of collection and disposal of garbage may differ on various ships or stations, but the basic requirements are the same. Garbage must be disposed of promptly to prevent contamination of spaces and to eliminate a possible fire hazard.

Garbage and refuse must be kept in leak proof, nonabsorbent containers and a sufficient number should be provided to prevent overfilling. Containers will be emptied as necessary during operations and at the close of each workday. After being emptied, each container should be thoroughly cleaned, inside and outside, in a manner that will not cause contamination of food, equipment, utensils, or food preparation areas. Suitable facilities, including hot water and detergent, should be provided and used for washing the containers.

Ashore galleys and outside refuse and garbage storage areas or enclosures should not be located within 100 feet of the foodservice facility. They should be placed on or above a smooth surface of nonabsorbent material such as concrete or machine-laid asphalt. These surfaces must be kept clean and in good condition.

Food waste disposers or grinders may be used for garbage disposal provided they are designed and/or located in a reamer that prevents contamination of food contact surfaces as a result of a splash and aerosol generation. Potable water should be used as a flushing medium unless otherwise indicated by Bureau of Medicine (BUMED).

Insect and Rodent Control

According to BUMED, the term vector is used to refer to all insects, rodents and related animals that are significantly related to the transmission of disease to man, act as intermediate hosts or reservoirs of disease, present problems of sanitary or hygienic significance, or otherwise affect the health and efficiency of personnel.

Programs for controlling vectors are command responsibilities coordinated through public works programs and medical departments. Because the first and most important step in control is to destroy breeding grounds, basic sanitation measures for which foodservice personnel are responsible must be strictly enforced.

The foodservice facility and its adjacent grounds must be kept clean and free of litter and debris. Openings to the outside should be effectively protected against the entrance of rodents and insects by use of self-closing doors, closed windows, screens, air curtains, or other means. Screens should be tight fitting, free of breaks or tears, and not less than 16 to 1 mesh. However, screens are not required in air-conditioned foodservice spaces where windows or portholes are sealed closed.

Space Cleanliness

In most foodservice operations, a space inspection is conducted before securing. At most commands the inspection is conducted by the Duty Supply Officer or a senior CS. Areas of concern are sanitation, fire, safety and security.

Always remember that strict sanitation procedures should be followed in all areas of foodservice operations. Cleanliness can never be overemphasized.

FOOD SERVING AREAS—All serving lines should be equipped with a functional sneeze shield. It must present a barrier between the oral zone of patrons within the normal range of stature and the food displayed for service.

Proper cleaning and sanitizing procedures for foodservice equipment on the line and around the serving area are equally important in the galley. A number of regulations attendant to serving food must be observed to reduce the possibility of food infection. All pans, serving utensils and counters must be kept immaculately clean and sanitized.

Self-service bars must be carefully supervised to prevent contamination of food items by patrons, thereby preventing the transmissions of pathogenic organisms from one person to another.

FOOD PREPARATION AREAS—High standards of sanitation and cleanliness must be maintained at all times in these areas. As a CS, you will practice and enforce the "clean as you go" policy for every foodservice person. Cleaning in this way helps maintain high sanitation standards as well as to cut down on the cleanup time after the meal and at end of the workday. Wash your hands and equipment first before starting to prepare food items. Contaminated hands or equipment leads to contaminated food. Keep worktables sanitized and immaculately clean. Do not use steel wool (steel wood is not permitted) for cleaning. Smoking, eating and drinking is not permitted in any foodservice areas.

RECEIVING AND FOOD STORAGE AREAS—Before receiving and storing food items, it is very important that loading docks, piers, or areas where foods are received and stored must be thoroughly cleaned to avoid food contamination. Stores must be inspected for temperatures, identity, quality, and the presence of cockroaches and other insect pests before they are stored. Correct storage procedures play a major role in preventing food-borne illnesses and increasing the storage life of food. High levels of sanitation and safety must be maintained in all food storage facilities. Food items should be safely palletized or placed on shelves in an appropriate manner. This proper storage allows proper cleaning and prevents insect and rodent infestation.

DEFENSE AGAINST CHEMICAL, BIOLOGICAL AND RADIOLOGICAL AGENTS

The nature of the chemical, biological and radiological contamination problem and the basic procedures to be followed when decontaminating food, galleys, spaces and equipment are discussed in the following paragraphs.

DEFENSE AGAINST CHEMICAL AGENTS

The United States has committed itself against initiating the use of chemical agents. However, it is necessary to be prepared against attack by an enemy using this type of warfare.

A chemical agent is defined as a solid, liquid, or gas that, through its chemical properties, produces lethal or damaging effects on man, animals, plants, or material, or produces a screening or signaling smoke.

Chemical warfare agents, like the biological warfare agents, are used mainly because of their effect on personnel, although some agents will have a corrosive effect on specific materials, and incendiary devices will burn most materials. These agents produce a harmful physiological reaction when applied to the body externally, inhaled, or ingested. Most chemical agents cause disorganization of the functioning of the body.

The degree of contamination of the messing area and equipment depends on the chemical agent used and the factors involved, such as the method of delivery (vapor, light liquid, and heavy liquid), the weather, and the various strengths of contamination.

The following paragraphs prescribe the methods to be used in decontaminating eating, drinking, and galley utensils; galley and foodservice equipment; and messing areas that are contaminated by chemical agents.

CHEMICAL DECONTAMINATION METHODS

Vapor Contamination

After the surrounding areas have been decontaminated, the entire general mess should be aerated thoroughly and the entire area washed down inside and out with safe water. All equipment and utensils used in the preparation and service of food should be washed carefully using normal procedures. Spaces, utensils, and equipment should then be tested with the chemical agent detector kit and, if necessary, any of the prescribed procedures should be repeated.

Light Liquid Contamination

The messing area inside and out should be washed with hot water. You may add an alkaline detergent, such as a standard general-purpose detergent, and if applied at high pressure, it will increase the water's effectiveness. As an alternative method, for mustard gas, you may apply a bleach solution to all surfaces. After washing down, aerate the entire area. If slight contamination remains, the area should be heated to as high a temperature as possible for about 1 to 2 hours. Then the spaces should be opened and ventilated for 15 minutes. Repeat the procedure as necessary, testing at intervals with a chemical agent detector kit. Porous objects, such as meat blocks and wooden benches, may absorb liquid contamination to the extent that they will have to be destroyed. Metal, glass, or china utensils or any equipment that is not damaged by water should be immersed for 30 minutes in actively boiling water. Add 1 cupful of alkaline detergent to each 5 gallons of water. Upon

completion of the boiling process, you should follow normal dishwashing procedures. Plastics generally cannot withstand boiling water and should be destroyed.

Heavy Contamination of Liquid

Heavy contamination of liquid is unlikely, except from a direct hit, in which case recovery of the space and contents will be a major undertaking. However, when such is the case, the following procedures are recommended.

Space should be roped off or abandoned as unsalvageable, as no amount of washing or scrubbing of a porous surface that is heavily contaminated by a liquid chemical agent (particularly mustard gas) is likely to do much good.

Metal, glass, or china utensils or any equipment that is not damaged by water should be decontaminated in the same manner as prescribed for light contamination of liquid discussed earlier.

Large equipment unsuited for immersion in boiling water should be scrubbed vigorously with DS2 solution or hot water and an alkaline detergent, rinsed, disassembled and scrubbed again paying particular attention to any parts not reached in the assembled state that are reachable in the disassembled state. Then, the equipment should be rinsed, dried, oiled, greased and reassembled. Wooden items should be removed and destroyed.

On electrical equipment, unless the electrical unit is enclosed in a watertight seal, water must not be used in the decontamination process. Electrical equipment should be cleaned with trichloroethane or DS2 solution. All greases must be removed, bearings cleaned and the equipment regressed.

Trichloroethane and DS2 are toxic chemicals. Protective clothing and respirators should be worn when they are used, and the MSDSs should be consulted for additional precautions.

DEFENSE AGAINST BIOLOGICAL AGENTS

The United States has renounced all use of biological agents in warfare, but the need still exists to be prepared to defend ourselves against these agents if other countries should use them. The following section, therefore, discusses the nature of biological agents and the measures you should use to decontaminate the galley, messing areas and food storage spaces in the event of enemy biological attack.

A biological agent is defined as a microorganism that either causes disease in man, plants and animals or causes the deterioration of material.

The chief objective of biological agents is mass infection that results in the incapacitation or death of large numbers of individuals or in the destruction of their sources of food, both animal and plant. The biological agents, unlike most other weapons, act on living matter only and are limited in use to these objectives.

In case of a biological attack there are certain instructions that should be carried out for the protection and decontamination of eating, drinking and galley utensils; galley and foodservice equipment; and messing areas contaminated by biological agents.

Good sanitary and hygienic practices are the best defense against many aspects of biological warfare. A close examination of the cleanliness of the mess and strict adherence to the applicable instructions will improve biological defense greatly.

The problems of biological agents differ from ordinary military hygiene problems only in that hardier types of organisms may be present in other than their normal environment and in higher levels of contamination.

In treating the problem of biological attack, it is assumed that there could be contamination of personnel, of all exposed surfaces, and of circulating air. Because of the current difficulties in rapidly detecting biological agents, knowledge of contamination might (although not necessarily) be based on the occurrence of widespread or unusual sickness. This sickness could be caused by contamination that had occurred several days or weeks before. A situation could exist also whereby extensive use of biological agents would require additional precautions in the operation of all messes. These instructions are intended for use in the event of suspected or known biological attack. The problem is to decontaminate and prevent recontamination.

Biological Decontamination Methods

Use calcium hypochlorite (bleach) solutions for biological decontamination. Scrub the interior surfaces of contaminated spaces with 200-ppm chlorine solution to remove dust and grease. Then, hose spaces with fresh, safe water and repeat the process. You may also use iodine solutions prepared by the medical department.

Large equipment (those items too large to be immersed in sinks or run through dishwashing machines) should be washed, rinsed and decontaminated in the same manner as prescribed for interior surfaces of messes. Small items of equipment that will not suffer damage by immersion should be washed, rinsed and sanitized in the dishwashing machine or by hand dishwashing as described earlier in this chapter.

Before eating and drinking utensils are brought to the scullery for decontamination, the interior bulkheads, all working surfaces (tables, dish carts, and sinks), the interior and exterior of the dishwashing machine, and all other equipment used in the washing and sanitizing of eating and drinking utensils should be thoroughly washed, rinsed and decontaminated as appropriate.

Eating and drinking utensils should be decontaminated by machine or hand washing. A person who has handled contaminated utensils should not handle decontaminated utensils until the person has been decontaminated. Decontaminated articles should not be placed in contact with any surface that has been exposed to contamination. If possible, use baskets or containers designed to hold silverware in a vertical position, handles down, during the washing and sanitizing processes and additional containers of similar construction into which the silverware may be inverted without being handled by workers. If such containers are not available, lay the silverware flat in the racks, not exceeding two utensils, with the handles extending in the same direction. Do not exceed a depth of two utensils. Take care when removing utensils from the racks after decontamination to prevent recontamination.

Sterilization by hypochlorite solution should be used only when dishwashing machines do not operate correctly. While they are still in the wash rack, soak the utensils for 1 full minute at 100°F to 140°F in a solution of 1 part hypochlorite and 50 parts water in a single-tank machine, or 1 part hypochlorite and 500 parts water in a double-tank machine. One-fifth of 1 percent of a detergent must be added to either solution.

This solution may be mixed from nonionic detergent and any one of several chlorine containing compounds such as calcium hypochlorite, or laundry bleach.

In storage, compounds containing chlorine have been known to deteriorate. It will be necessary, therefore, to have a qualified person from the ship's company analyze the soaking solution for chlorine content to make sure the proper concentration of available chlorine is attained and continued at sufficient strength.

After the sterilization, soak and water rinse, cover the wash racks containing the utensils with a cloth that has been sterilized by boiling. Do not transfer utensils to another rack. Make sure personnel in the serving line pick up utensils from the wash racks by touching only the handles.

Large equipment may be decontaminated by the use of hypochlorite. Hypochlorite is corrosive to all metals that will rust and should not come in contact with motors and other electrical equipment from which hypochlorite cannot be thoroughly wiped off. After decontamination, cover as much of the equipment as possible with clean cloths to prevent recontamination.

Avoidance of Recontamination

Recontamination may be caused by secondary aerosols that resettle organisms on surfaces or contaminate the air that is breathed. Secondary aerosols are clouds formed from particles (bacteria or other organisms) that, having been deposited on a surface, are stirred up into the air again by scuffing, shaking, or other mechanical action. Secondary aerosols may be suppressed by wetting surfaces with oil or water. If oil is used as a suppressant, it must not generate harmful vapors and it must not be applied to walking surfaces that may create slippery conditions.

It is important to make sure, before entering the messing area, CS personnel and all personnel eating in the messing areas are as free as possible from contamination. The medical officer should be consulted on the decontamination of foodservice personnel. In cold weather, personnel in the serving line should be required to remove outer garments and leave them outside the messing area before entering the mess. It has been found that removing clothing will shake off organisms that have come in contact with the surfaces, thereby setting up secondary aerosols. Do not permit unauthorized personnel in foodservice spaces.

Hypochlorite is a strong oxidizer and, in powdered form, reacts violently with oils and greases. Use hypochlorite in a well-ventilated area. Always wear goggles and protective gloves, and consult the Material Safety Data Sheet (MSDS) for additional precautions.

Decontaminating Food Items

The advice of the medical officer must be sought before any attempt is made to decontaminate food suspected of biological contamination.

Semi-perishable Food Items

Food packed in containers that are resistant to the passage of biological agents (sealed containers made of metal, plastic, glass, or porcelain) requires only proper exterior decontamination be performed. Paper labels and paper covers must be removed from the container and one of the following methods of decontamination should be used:

- Immerse the containers for 15 minutes in a solution of water to which 200-ppm available chlorine has been added and then rinse them with potable water

- Soak the containers for a minimum of 15 minutes in effective detergent solution as a quick method to reduce contamination to a safe level. (See formula 1 discussed under the heading Radiological Decontamination.) Then rinse them with potable water
- The exterior surfaces of stacks of food packed in impermeable packages can be sterilized using any of the standard chemical methods such as bleach solution, sodium carbonate, or DS2 followed by rinsing in potable water
- Food packages that will not stand immersion must be wiped off with a solution of water to which 200-ppm available chlorine has been added and the food thoroughly cooked before it is eaten.

Fresh or Chill Items

Food that can be peeled or pared may be decontaminated by soaking for 15 minutes in water to which 200-ppm available chlorine has been added before it is peeled. The food must then be thoroughly rinsed in potable water. It can then be peeled or pared and should be rinsed again with potable water. This method has been applied satisfactorily to apples, potatoes and eggs.

For other fresh or chill items, the use of heat is the most practical means of decontaminating foods. Thorough cooking will reduce contamination to a safe level so that food can be consumed.

Frozen Items

Food items stored in the freeze space in impermeable containers (e.g., tamed frozen strawberries) may be decontaminated by immersing the containers for 15 minutes in a solution of water to which 200-ppm available chlorine has been added; the containers are then rinsed with potable water.

Food items stored in the freeze space in permeable containers (e.g., frozen vegetables) may be decontaminated as outlined earlier for food packaged in sacks or other permeable containers.

Food items stored in the freeze space, but not contained in outer packaging (e.g., meat), must be completely thawed and thoroughly cooked before they are eaten.

Additional Precautions

Hands should be free of contamination during the opening operations to make sure the contents are not contaminated. Opened cans of fruit jam, jelly, or similar foods must be destroyed. Opened cans of vegetables may be decontaminated by boiling the vegetables for a minimum of 15 minutes in a steam-jacketed kettle.

Biological Decontamination in Food Preparation

The use of heat is the most practical means of decontaminating biologically contaminated foods. In no case should decontaminated food be consumed until it is pronounced safe by a medical officer. It is recommended that, insofar as possible, only foods contained in impermeable packages (cans, bottles, jars) be decontaminated and used for meal preparation.

Food items that are not packaged or that are packaged in permeable containers may be cooked by either cooking in a pressure-type cooker at 15 pounds of pressure at 250°F (or 121°C) for 15 minutes or boiling for a minimum of 15 minutes.

Certain contaminated items may be decontaminated by baking. Only those recipes listed in the Armed Forces Recipe Service (AFRS) that specify an oven temperature of 400°F and above, for a cooking period of 30 minutes or longer, should be used to prepare baked items from contaminated ingredients.

All meats except those contained in decontaminated impermeable containers (canned meat items) must be cooked to the well-done stage. Guidance cards in the AFRS include information on internal temperatures indicating the well-done state.

Biological Decontamination of Water

The detection of water contamination and requisite laboratory analysis are responsibilities of the medical department. Biological decontamination of water is not difficult when regular water treatment facilities exist. However, more chlorine probably will need to be added during the ordinary processing of the water. If no water treatment facilities are available, water can be decontaminated by either of the following methods:

- By boiling for 20 minutes
- By using iodine tablets coupled with boiling.

A medical officer should approve the method of decontaminating. After the decontamination process, the officer should determine whether or not the water is fit to be used. Water that has been decontaminated must be protected against further contamination.

DEFENSE AGAINST RADIOLOGICAL AGENTS

Radiological defense includes all such measures to minimize personnel and material damage from radioactivity. The basic responsibility for this function resides with the damage control organization of the ship or station. Your basic guidance in radiological defense matters will come from them. Supply Department personnel are normally assigned appropriate duties according to the damage control plan. You should be aware of the plans and procedures to be followed on board your ship or station.

Emergency operations are those that immediately follow the blast. During this period, a realistic evaluation of the disaster is made and initial steps toward recovery are taken. Protective clothing monitoring equipment and decontamination gear will also be needed.

Blast damage and thermal radiation may result in partial or complete destruction of messing facilities and food items. Radioactivity is important because of the effect it has on the human body. Because of its ability to penetrate matter deeply, gamma radiation is usually considered to be the most hazardous. Since the principal source of alpha particles would be the envisioned nuclear material of the weapon, the probability of significant alpha contamination from nuclear detonation is small. Beta particles have poor penetrating ability. Ordinary clothing will stop beta particles. They enter the skin only to a depth of about one-fifth of an inch, but their ionizing power is about 100 times that of gamma rays. When ingested with food, inhaled, or admitted into the body through cuts or open wounds, beta particles meet no barriers and become particularly destructive if they are retained in the body for some time. Therefore, in food preparation and service, all forms of radioactivity should be regarded as hazardous.

Radioactivity may be introduced into exposed materials that are close to the burst. Such items as soap, table salt, copper, or brass may become radioactive as a result of radiation (the action of

neutrons). Radioactivity may also be carried by blast residues, the principal one being dust particles. A person contaminated by radioactive materials can easily contaminate an otherwise safe object or area. If the person handles foods, the foods can become contaminated. Radioactivity cannot be destroyed by cooking or sterilization; neither can it be neutralized by chemical treatment. It must be removed as completely as possible to a limit of radioactivity set by the command authority in the light of existing circumstances.

There are various methods of removing contamination. They differ in effectiveness in removing the contaminant, in applicability to given surfaces, and in the rate of operation. These, in general, fall into two classes, gross or rough decontamination and detailed decontamination. Gross decontamination consists of a rapid washing down with large quantities of uncontaminated water from a fire hose or nozzle system. This class is generally not suitable for use in galley and messing areas except for decks. Detailed decontamination procedures are more thorough. These procedures use more time, manpower and material, but they are also more effective. Detailed decontamination will be necessary in galley and messing areas. Efforts to decontaminate with heavily contaminated water will obviously be ineffective. However, water contaminated to a lesser degree than the surface contamination to be removed may still be used. Water used for decontamination must be allowed to drain freely from contaminated areas. Water from tightly covered storage tanks should be safe and potable, provided the circulating system is tight. Water from open reservoirs cannot be relied upon to be free from contamination. Seawater in the neighborhood of an aerial burst to windward will be contaminated at the surface. A subsurface burst will heavily contaminate seawater in the vicinity. General knowledge of the local situation and a monitor survey should provide data on which a decision regarding the water supply will be based.

When materials (cleaning agents) specifically designed to remove radioactive contaminants are available, those materials should be used according to instructions and the Material Safety Data Sheet (MSDS). When they are not available, the following solutions are suggested for the general cleaning of galley surfaces:

Formula 1

Detergent general-purpose, liquid, water-soluble, type I, 1/2 pound. Military specification MIL-D-16791.

Sodium phosphate, tribasic, technical (trisodium phosphate), 1/2 pound. Federal specification O-S-642, type II.

Water, hot, 12 gallons, 100 pounds.

Directions: The sodium phosphate should be completely dissolved by stirring it into hot water. The liquid detergent should be added and stirred until it is thoroughly dispersed.

Formula 2

Dishwashing compound, machine, granular, free flowing. Federal specification P-D-425a (specify whether hard or soft water will be used).

Directions: The compound should be dissolved in hot water to make a 0.5 percent (approximate) solution (1 pound per 25 gallons of water).

The solution should be hot when it is used.

Formula 3

Citric acid, monohydrate, granular form. Military specification MIL-A-11029 (Cml), Change No. 3223.

Directions: Citric acid should be dissolved by stirring to make a 3 percent (approximate) solution (3 pounds per 12 gallons of water). In use, utensils should be immersed and metal surfaces should be sprayed.

Except for citric acid, the previous materials are commonly used and are readily available. The suggested formulas are not intended to take the place of agents specified in existing decontamination instructions. They constitute the bare minimum as substitutes and should serve to meet immediate emergency requirements. All chemical cleaning agents function most efficiently when hot. The choice of method and cleaning agent to be used should depend upon the nature of the surface to be decontaminated, the kind and degree of contamination, and the time, manpower, and materials available to do the work.

All these cleaning agents are hazardous materials. Always wear goggles and protective gloves when mixing these solutions, and consult the MSDS for specific precautions.

Decontaminating Foods

All food should be carefully monitored. Foods in metal or glass packages may be safe. Contamination is best removed from the external surfaces by washing. Food items in sealed, dustproof packages may also be safe, provided the wrapper is not broken. To remove the contamination from these packages, vacuum them and carefully remove the outer wrap. Some vegetables can also be decontaminated if they are carefully washed, dried, monitored, and peeled-if monitoring shows contamination is not above specified limits. When surface contamination cannot be physically removed, the food should be condemned. All foods must be inspected and approved by the medical officer.

Decontaminating Spaces and Equipment

Thorough cleaning of all surfaces is vital. Work should commence overhead and continue downward in the direction of the liquid flow. When feasible, the first step should consist of flushing the surfaces with safe water. Do not get water on electrical controls that are not waterproofed. The second step involves systematic scrubbing with chemical cleaning agents. Piping, ductwork, stanchions, bulkheads, coamings and decks should be repeatedly scrubbed until monitoring indicates that a safe condition exists. Bare metal surfaces should be given an initial scrubbing with alkaline detergents to remove grease film. When available, citric acid solution should then be applied and allowed to remain for a minimum period of 10 minutes. Rinse the surface with safe, fresh water, allow to dry and monitor. In the absence of citric acid, vinegar may be used, but it is less effective.

Decontaminating Utensils and Dinnerware

Treat metal utensils and dinnerware such as metal tableware and cutlery in the same manner as other metal surfaces. Wash with a detergent followed by an acid treatment. When possible, immerse utensils and dinnerware in the acid solution. Crockery and glass present no particular cleaning problem, provided the glazed surfaces are without scratches or foreign deposits such as stains or hard water scale. Plastic ware may present some difficulty because of the relatively porous character of the surface, scratches, and the presence of foreign deposits. Both glassware and plastic ware should be machine washed, rinsed, dried and each item monitored. Those that do not pass should be inspected for cracks and surface defects. Cracked and badly scratched items should be disposed of

immediately. The other items still showing contamination should be given repeated washings until safe, or they should be segregated to await natural decay of contamination or disposal of the item.

Protection of Personnel

When you are engaged in decontamination, wear protective clothing as prescribed by the ship's damage control bill. If protective clothing is not available, similar garments may be substituted. Care must be taken to make sure substitute clothing adequately prevents radioactive particles from coming in contact with the skin or gaining entry to the body by ingestion, inhalation, or through breaks in the skin. Masks should be worn. In the absence of regulation masks, chemical goggles should be worn to protect the eyes. A High Efficiency Particulate Air (HEPA) filter respirator also can be used to protect the lungs.

Spaces that were not contaminated, or that have been decontaminated, must be carefully protected. All personnel and material must be carefully monitored (decontaminated if needed) before anyone is permitted to enter these spaces. Cleaning gear, items of protective clothing, and so forth, used in decontamination procedures should be segregated and disposed of as contaminated according to their level of contamination.

To familiarize yourself with protective clothing and equipment, and with the procedure for adapting regular issue clothing for NBC warfare protection, see Military Requirements for Petty Officer Third Class, NAVEDTRA 12044.

Preventing Recontamination

Contaminated items brought accidentally into spaces should be removed and, pending decontamination of the affected areas, these areas should be roped off. Personnel who may have walked through these areas or who may have otherwise come in contact with radioactive particles should be sent to the decontamination station.

SUMMARY

In this chapter, we identified the different food-borne illnesses, different types of poisonings, principles of personal hygiene, principles of food service equipment, manual and machine dishwashing principles, spaces, food products, and the defense of chemical, biological, and radiological agents.

In a foodservice operation, nothing rivals the importance of sanitary food preparation and service. Carelessly handled food is easily contaminated with pathogenic organisms that may lead to illness. This chapter discussed the methods of preventing illnesses arising from poor sanitary practices in the preparation and service of food.

CHAPTER 6

FOODSERVICE EQUIPMENT

***LEARNING OBJECTIVES**: Upon completion of this chapter, you should be able to do the following:*

— Identify different types of galley equipment ashore and on board ships.

— Discuss the proper operation of each piece of equipment.

— Know the proper care and cleaning procedures for each piece of equipment.

INTRODUCTION

The foodservice equipment located in the galley and dining areas at shore facilities and aboard Navy ships is designed specifically for serving large quantities of food. To make sure of the safe, sanitary and efficient operation of this equipment, it must be maintained in proper working order and used correctly.

GENERAL PRECAUTIONS

Before attempting to operate any foodservice equipment, you should observe the following general precautions:

- Only trained and qualified personnel are authorized to use food service equipment
- Check for and determine the location of emergency materials such as fire extinguishers, emergency switches, first aid boxes and telephone emergency numbers to make sure they are available should an accident occur. Report any deficiencies or malfunctioning materials to the supervisor
- Make sure the area around the equipment is clear of obstructions and thoroughly dry. All spills must be cleaned up immediately to ensure a clean, dry, non-slippery working surface
- Make sure the working area has ample lighting
- If there is any doubt about the operating procedures or safety precautions, report to the supervisor
- Be certain no loose gear is in the vicinity of moving parts of machines. Before starting, you should make sure all safety guards, screens and devices are in place
- When operating a machine, you should make sure you maintain a safe distance from all moving parts. *Never use your hands or body to stop moving blades and parts even though power has been turned off*
- Never lean against a machine while it is operating
- Use safety equipment such as rubber protective gloves, safety goggles and dip baskets while handling chemicals or hot water. Consult the Material Safety Data Sheets (MSDSs) for additional precautions before using cleaners and detergents
- Keep your hands, body and clothing away from moving machine parts

- Never leave machinery unattended while in operation
- Do not distract the attention of personnel who are operating the machines
- *Do not attempt to clean or service a machine while it is in operation.* Before cleaning, adjusting, oiling, greasing, and so forth, you should ensure the power is turned off and the equipment is de-energized and properly tagged out of service. Engineering department should be notified of any damaged equipment
- All repairs, tag-outs and servicing should be made only by authorized personnel
- Make sure safety devices such as safety interlocks on covers of vegetable peelers and bread slicer safety cutoffs are maintained in proper working condition at all times. If removed for any reason, such devices must be replaced before the machine is put into operation
- Remove rings and watches and eliminate any loose clothing such as unbuttoned sleeve cuffs, oversized gloves and ill-fitting coats or jackets
- Make sure all permanently mounted equipments are hardwired
- Make sure any rubber safety covers over electrical switches are in place and have no holes or cracks.

TYPES OF EQUIPMENT

Foodservice equipment is used for the cooking and preparation of food and the cleaning of utensils and dinnerware. This consists of all equipment located in foodservice spaces like the General Mess (GM), bakeshop, meat preparation room, dining areas and sculleries.

Numerous items of foodservice equipment such as vegetable peelers, meat choppers, dough mixers and refrigerators are either driven by electric motors or are heated electrically (such as ranges, broilers, griddles, and tilt skillet) Safety precautions must be observed around all electrical equipment to avoid injury from shock. Major cleaning requires the equipment to be tagged out according to the tag-out bill.

Negligence in carrying out routine operating instructions and preventive maintenance introduces an undue health hazard among patrons. Therefore, it is vital that the correct operating procedures be followed, that a cleaning schedule be carefully adhered to, and that the machine be given adequate preventive maintenance to make sure of satisfactory cleaning and sanitizing of eating utensils.

It is necessary to know all the foodservice equipment needed, whether it is for cooking, serving, cleaning, mixing, cutting, or storing. Understanding their basic operation and cleaning is a must for every foodservice personnel. For more information refer to P-486, Chapter 6.

STEAM-JACKETED KETTLES

There are two different types of steam-jacketed kettles in use afloat as well as ashore. It is important to know which type your command uses. The following are basic principles to follow for each type of kettle:

- Steam-jacketed kettle (steam supplied): Steam is supplied to foodservice spaces for the use of the steam-jacketed kettles. The foodservice division is required to make sure the operating procedures are closely monitored; the steam kettle can become a potential lethal instrument. To make sure the kettle is maintained properly, ensure that the proper Planned Maintenance System (PMS) is being conducted by Engineering Department, at the required time intervals

- Hydrostatic Testing of steam jacketed kettles: Hydrostatic testing of steam Jacket kettles is required as per OPNAVINST 11000.16 (series) (ASHORE) and NAVSEA Tech Manual Chapter 651 Commissary equipment (AFLOAT) to be scheduled on the ships preventive maintenance schedules. The testing is required on an annual basis

- Steam-jacketed kettle (electric): Steam is internally supplied through a sealed "vacuum" system. It is the responsibility of the galley watch captain to make sure the level of water does not go below the minimum level on the sight glass. To recharge the system you must add distilled water obtained from either the ship's distilling plant or from sources of supply. If tap water is used, it can cause a buildup of mineral deposits on the heating coils and decrease the effectiveness of the kettles

- Steam-jacketed kettles are used to prepare a variety of food items such as soups, sauces, vegetables, meat and beverages. This equipment is very important and should be handled with great care (Figure 6-1). The kettles vary in size from 5 to 80 gallons. The lower two-thirds (approximately) of each kettle are surrounded by a jacket that is offset from the main kettle body to provide space for steam to circulate and heat the contents of the kettle. The kettles are permanently mounted on a pedestal or three legs and have a hinged lid or cover. They also have a tube at the bottom of the kettle with a faucet at the outer end for drawing liquids instead of dipping them out, and a steam inlet connection, a steam outlet connection, and a safety valve. Refer to NAVMED P-5010 Chapter 1 for safety relief valve requirements. Some steam-jacketed kettles have a handle on the side making it possible to tilt the kettle and pour contents into a service container. This type of kettle is usually used to prepare gravies and sauces. Kettles now in use are made of three types of material: corrosion-resisting steel, aluminum and single-clad corrosion-resisting steel. Never fill the kettle completely full. When the lid is closed while cooking, make sure you are extremely careful in opening the lid because hot steam trapped in the kettle could burst out and cause a serious injury. If it is necessary to stir the contents, use a metal paddle; never leave the paddle in the kettle while cooking.

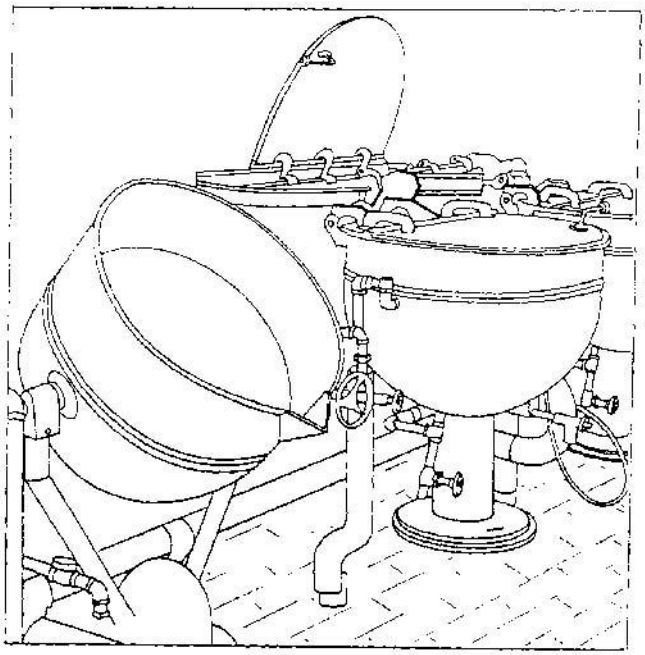


Figure 6-1.—Steam-Jacketed kettles.

ELECTRIC GRIDDLE

The griddle consists of cooking surfaces of various sizes up to 34 inches deep by 72 inches wide. Each has a readily removable grease receptacle in the front of the griddle and a splash guard at least 3 inches high at the rear of the griddle which is tapered at the sides. All thermostat dial knobs are conveniently located on the front panel. Each thermostat dial knob has a signal light that indicates the griddle is turned on until the griddle has reached the dialed temperature. For Accu-Temp Style Griddle, refer to Food Service Operation Handbook Chapter 8.

TILTING SKILLET

Tilting skillets are large frying pans with deep sides and an attached lid. They are used to grill, fry, simmer and braise large quantities of food. They can be mounted on a wall or on a stand and can be tilted at least 90 degrees from the normal horizontal position for emptying cooked foods and cleaning. Skillets are either gas or electric, have an electric thermostat, and have a temperature range of 100°F to 450°F. There is also a secondary thermostat that is a high-limit cutoff that disables the power circuit when the temperature exceeds 460°F. Gas skillets are also furnished with a pressure regulator, connector, quick-disconnect, and a 100-percent shutoff device for the pilot (automatic ignition of gas). Most skillets will also have a faucet directly attached to the skillet to aid in cooking and cleaning.

Operation

The skillet is heated from the bottom by either resistant heating elements or a series of gas burners. Usually, the tilting mechanism can be locked in any position. On some models, the tilting feature may have a safety switch to be engaged if the skillet is HOT or ON. If the skillet is provided with a faucet, it may be connected directly to a water supply.

NOTE: *(1) Keep the tilting mechanism thoroughly lubricated for ease of operation.*

(2) Always turn off the heating element before tilting.

Care in Cleaning

The tilting skillet should be cleaned after each use. Before cleaning you must turn off the heating element and scrape off the hardened food from the inside of the skillet with a spatula or scraper and flush down the sediment with a small amount of water. If the skillet has become very dirty, fill it to the level with hot water containing a mild hand dishwashing detergent. Turn on the heating element and allow the water to come to a boil. Boil the water for at least 5 to 10 minutes. Turn off the heating element, drain, rinse with warm vinegar water, then rinse thoroughly with clear water and dry the skillet well. Clean the outside of the skillet with a grease-cutting detergent. *Do not leave heating element turned on when the skillet is empty*.

Always use a strainer for left food particles, so it won't clog the drain.

DEEP-FAT FRYER

Sizes of deep-fat fryers are expressed in the number of pounds of French fries that can be cooked in an hour and range from 30 to 125 pounds. Some deep-fat fryers are manually loaded. Others have automatic basket lowering and raising capabilities controlled by a timer. The deep fat fryer has the potential to be an extremely dangerous piece of equipment. If the deep fat fryer is not maintained properly or safety rules adhered to the possibility exists that you may be severely burned. Refer to Food Service Operations Handbook Chapter 7 and 8 for basic safety rules, care, and operations.

ELECTRIC/COMBI-OVEN

Electric ovens have two to six compartments with two heating units in each compartment, one located below the bottom deck of the compartment. Each heating unit is controlled by a separate three-heat switch, and the temperature of each section is regulated by a thermostat. Refer to Food Service Operation Handbook Chapter 8 for Operating and Safety Precautions.

CONVECTION OVEN

A convection oven has a blower fan that circulates hot air throughout the oven, eliminating cold spots and promoting rapid cooking. Overall, cooking temperatures in convection ovens are lower and cooking time is shorter than in conventional ovens. The size, thickness, type of food, and the amount loaded into the oven at one time will influence the cooking time.

General Notes

Most convection ovens are equipped with an electric interlock that energizes/de-energizes both the heating elements and the fan motor when the doors are closed/open. Therefore, the heating elements and fan will not operate independently and will only operate with the doors closed. Some convection ovens are equipped with single-speed fan motors while others are equipped with two-speed fan motors. This information is particularly important to note when baking cakes, muffins, meringue or custard pies, or similar products, and when oven-frying bacon. High-speed air circulation may cause damage to the food (for example, cakes slope to one side of the pan) or blow melted fat throughout the oven. Read the manufacturers' manuals and determine exactly what features you have and then, for the previous products, proceed as follows:

- On two-speed interlocked fan motor: set fan speed to low
- On single-speed interlocked fan motor: preheat oven 50°F higher than the recommended cooking temperature. Load oven quickly, close doors, and reduce thermostat to recommended cooking temperature. (This action will allow the product to be baked to setup before the fan/heating elements come on again)
- On single-speed independent fan motor: preheat oven 25°F above temperature specified in recipe. Turn the fan off. Reduce heat 25°F. Load oven quickly and close doors. Turn fan on after 7 to 10 minutes and keep it on for remaining cooking time.

EXCEPTION: *When cooking bacon, leave the fan off to eliminate fat from blowing throughout the oven.*

Read and understand the manufacturers' manuals. They will make your job easier and safer.

ELECTRIC RANGES

Electric ranges are normally found in Wardroom/CPO Messes, small ships and submarines.

Type C

Type C is found on small ships messes where small galleys with limited space are found. This type of range consists of a griddle on the left side and hot plates on the right side with a single oven located in the body of the range. This type of range is also available with a single griddle top and single oven compartment. Dial temperature control knobs are mounted on the body directly adjacent to each section. Control knobs for the oven compartment are located to the right of the oven compartment.

ELECTRIC FOOD MIXER

Electric food mixers are used for an infinite number of jobs including beating batters for cakes, mixing bread dough, beating eggs, and mashing and whipping potatoes.

Sizes and Attachments

Food-mixing machines (Figure 6-2) are furnished in 20-, 60-, 80-, 110-, and 140-quart sizes with the necessary attachments, paddles and beaters (Figure 6-3). The wire whip is used for eggs, cream and lightweight mixing; the flat beater for cake batters and medium weight mixing; the dough hook for mixing bread dough; and the wire beater for medium-stiff dough.

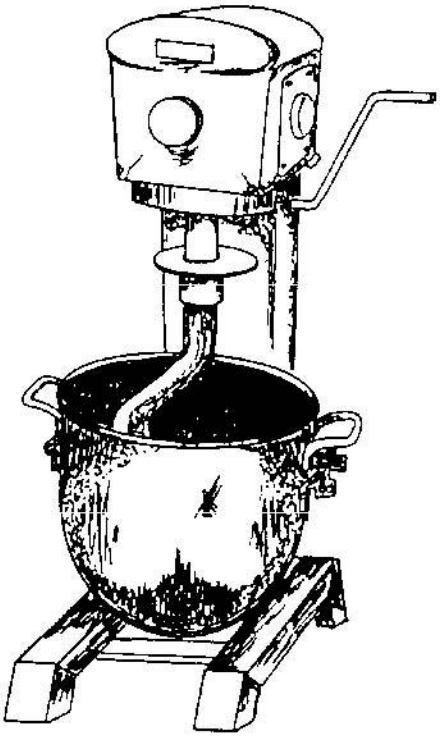


Figure 6-2, Electric mixer.

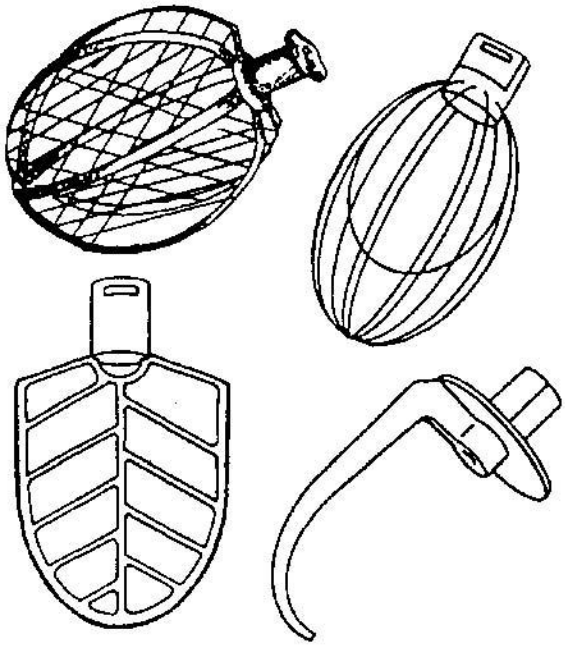


Figure 6-3, Electric mixer attachments.

One part of the machine revolves through the use of a set of transmissions and differential gears. Various shaped paddles and mixers can be attached to this revolving unit.

The lower part of the mixer contains two extended, adjustable arms. A bowl, containing the foods to be mixed, is placed on these arms and the arms are then moved up so the paddles will revolve throughout the mixture. The machines have either three or four speeds. Usually they have an attachment hub that can be used for a vegetable slicer, juicer and meat grinder.

ELECTRIC MEAT-SLICING MACHINE

The meat-slicing machine (Figure 6-4) is motor operated and is used for slicing hard or soft foods such as roasts, cheese, bacon, luncheon meats and ham.

The machine has a carriage on which the meat is placed. A swiftly revolving disk knife slices the meat as the carriage is moved across the face of the revolving knife.

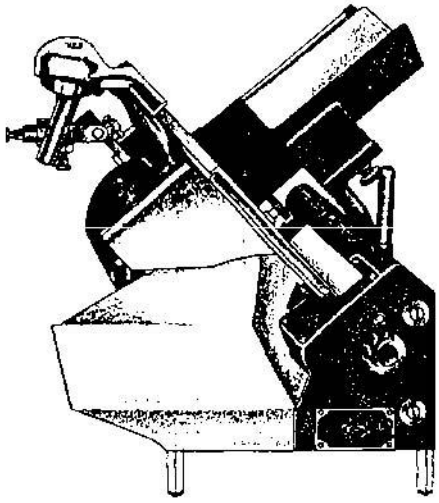


Figure 6-4, Electric meat-slicing machine.

HIGH-COMPRESSION STEAMER

Steamers are used for steaming fish, fruit, meat, poultry and vegetables. Most steamers used in the Navy consist of a three door, three-compartment unit. Each unit has one or two perforated pans or baskets.

The high-compression steamer (Figure 6-5) is a modular unit that is used to defrost and cook food by using high-velocity steam. When steam enters the unit, it is piped to a jet box from which it is jetted directly onto the frozen food at approximately 200 miles per hour (mph). The steam gains the high velocity by being forced through a series of small perforations.

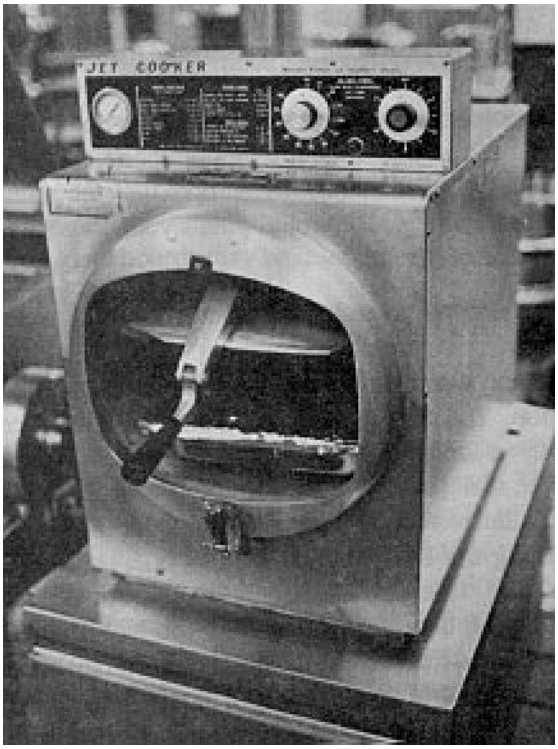


Figure 6-5, High-compression steamer.

VENTILATOR HOODS

Ventilator hoods come in a variety of shapes, sizes and appearances, and vary in their effectiveness from barely acceptable to highly efficient. The filter-type hood falls into the barely acceptable category, and the filter-less grease extractors–mostly known as Gaylord ventilators–are the most efficient. Filter-type hoods are the hardest to keep clean and are gradually being re-placed as funds allow. They generally have no built-in fire protection system. If the filters are not replaced after cleaning, a buildup of grease deposits in the exhaust duct system could lead to a fire! Depending upon the type of fumes exhausted and the amount of use, the filter should be removed and washed in the dishwasher or deep sink daily, or no less than once a week. The hood chamber behind the filters should be cleaned while the filters are out and you should *be sure the filters are then put back*. Also, remember, with all ventilators, to remove the access cover plates on the exhaust ducts, inspect for grease buildup in the ducts, and clean as necessary.

The hood, generally referred to as the Gaylord (named after the original manufacturer), is the type that uses an arrangement of internal baffles to cause the exhaust air to quickly change direction several times before it enters the exhaust duct. In so doing, the air slings the grease out into the grease trough that is built into the bottom part of the hood. This action is what gives the hood the name of centrifugal grease extractor. Other than the air, the only moving part in this system is the fire damper that is spring-loaded to close the throat or inlet air slot in case of fire, and this damper, when open, also serves as the first of the air baffles. All the action up to this point is carried out automatically by the hood as long as the exhaust blower is operating correctly.

Another automatic feature is the fire-sensing thermostat located in the exhaust ductwork close to the hood. From the outside, this looks like an aluminum box about 2 1/2 inches wide by 4 inches long by 1 1/2 inches deep. On the back of this, and projecting inside the duct, is a thermostat probe

that is constantly checking air temperature in the exhaust duct. If a fire starts, and the air going by the thermostat reaches 250°F, the thermostat switch operates a magnetic trip inside the fire damper control box (the one with the plunger mounted above the hood), the fire damper slams shut, and the blower shuts down. In later model hoods with automatic cleaning (more about this later), this condition also will cause the automatic water wash-down system to come on and spray water into the hood until the temperature at the thermostat is less than 250°F. On earlier models, the water or steam must be turned on manually. All shipboard model grease extractor hoods are fail-safe in that power failure or thermostat failure will cause the fire damper to close. This information will also be found on the nameplate on the damper control box. Complete technical information on airflow, electrical characteristics, and other data of primary use to engineering personnel can be found in the *NAVSEA Technical Manual, 0938-027-5010*.

We discussed the automatic features that the hood will perform. Now, we discuss what you as a CS should do to keep it working and ventilating properly.

All centrifugal grease extractor hoods require at least daily cleaning. You may find three different types of cleaning systems, all having a look-alike appearance but slightly different in method:

- Steam cleaning (manual)
- Hot water cleaning (manual)
- Detergent wash-down system (automatic and manual).

In both steam cleaning and hot water cleaning, you must shut off the exhaust blower motor at the control panel, turn on the steam or hot water valve in the line leading to the upper part of the hood and allow it to run for 5 minutes or more, depending on how dirty the inside of the hood gets. If hot water is used, the temperature should be between 130°F and 180°F, and the closer to 180°F the better. After shutting off the steam or water, open the inspection doors on the ventilator and see if the grease and dirt have been flushed away. If the entire hood interior is still dirty, you need to leave the valve open longer. If only a certain area is dirty, you may have a clogged spray nozzle. Clean the hole in the nozzle with a small piece of wire.

During the wash-down, watch the drain line from the bottom of the hood. It should run freely and should be dumping through an air gap to a deck drain. No shutoff valves are allowed in the drain line and the line should never be directly connected to a drain. Otherwise, a stopped-up drain could allow sewage to backup into the hood and spill into food and food equipment. Hand-clean all exposed surfaces of the hood including the front surface of the fire damper baffle. Watch your fingers when cleaning the damper. If the damper is accidently tripped, it could pinch your fingers against the back of the hood.

Automatic cleaning is a timed, push-button cleaning system. A dishwasher scrubbing action with detergent and hot water is obtained by directed spray nozzle action. The nozzles are located on 8 to 10 inch centers on the cleaning pipes mounted on the interior back wall of the ventilator. The cleaning cycle is activated each time the blower serving the ventilator is stopped by pushing the STOP button on the exhaust control and cleaning station. This shuts off the blower and releases detergent and hot water into the ventilator for a preselected and preset time on the adjustable timer in the exhaust control and cleaning station.

After the cleaning cycle has been completed, follow the same steps as previously explained in manual cleaning, except clean the detergent tank and refill, if needed, with the correct detergent. Note that the timer for the automatic wash cycle is located in the stainless steel cabinet that houses the exhaust control and cleaning station. The length of the automatic wash cycle is adjustable and should be

adjusted for the minimum time that will satisfactorily clean the hood. This will conserve utilities and detergent.

The hot water shutoff valve, usually located in the cleaning station cabinet, should always be left on unless plumbing repairs are necessary. On some ships, where low water pressure or the amount of hot water available is a problem and where all galley hoods are connected to a single automatic wash system, installing activities have found it necessary to install individual shutoff valves in the hot water/detergent line at each ventilator hood. In these cases, be sure only the valve at the hood to be cleaned is turned on. If you have an arrangement like this, for fire protection purposes leave the valve to the hood serving deep-fat fryers turned on and all others off, except when they are actually being washed. Directions for priming the detergent pump are located most often on the inside of the door. Motor bearings on the detergent pump should be oiled once every 6 months.

DOUGH PROOFERS

Dough proofers or fermentation rooms are used for conditioning dough and cooling baked bread. The air temperature and air moisture (humidity) in a dough proofer are kept at preset levels by automatic controls. Dough proofers are thermally insulated enclosures and vary in size from a small box with shelving to a room with space for many portable bread racks. The dough proofer is heated by steam coils or electric heating elements located inside the enclosure, or by self-contained air-conditioning units connected to the proofer by air ducts. For shipboard use, steam-heated dough proofers are furnished in various sizes; the number and size of the proofers depend on the capacity of the bake ovens installed in the bakery on board ship.

BREAD SLICER

The bread slicer is a machine with small thin blades. The platform on which the bread is placed is at about a 45-degree angle so that the weight of the bread will force the loaf down on the cutting blade when the machine is turned on. The cutting blades are attached to a cam shaft that has half the blades going in one direction and the other half going in the opposite direction. The reason for this is so that it will not tear the loaf while it is being sliced. *Never* use your hand to push the load through the machine.

VEGETABLE PEELERS

Vegetable peelers (Figure 6-6, view A) have capacities of 10, 15, 30, or 50 pounds and have a cylindrical hopper with an abrasive-covered wall and an abrasive-covered rotary disk in the bottom. The disk has a wavy surface. This surface agitates the vegetables in such a manner that they continually present new surfaces for action by the abrasive material.

ELECTRIC VEGETABLE CUTTERS

Vegetable cutters (Figure 6-6, view B) are machines that, without the use of attachments or removable parts, make three classes of cuts of vegetables—shredded, sliced and grated. A dial control on the side of the machine allows instant changing of the thickness of the cut, even while the machine is in operation.

The entire front of the machine swings open to provide complete access to the interior for the purpose of cleaning and changing the blade. The machine should be washed with hot water immediately after it is used. The knurled knob holds the front of the machine securely when it is in operation.

Clean and scrub the knives and bowl with hot, soapy water and a very stiff brush. Rinse them well with hot water (171°F) and allow them to air dry thoroughly before reassembling.

Figure 6-6, Vegetable peeler (view A) and vegetable cutter (view B).

VEGETABLE CUTTER and SLICER

The vegetable cutter and slicer is used to cut vegetables that are to be used for cooking and for salads. The machine may be used to do as many as three different cutting jobs at once. It maybe used for slicing both bias or horizontal french fries, and julienne strips, and for coarse and fine chopping. The machine has a slicer adjustment for thicknesses up to one-fourth of an inch. The adjustment can be made while the machine is in motion. To make french fries or diced potatoes, the potatoes must be sized so that they will go into the machine.

When the machine is turned on, put a pan underneath the outlet to catch the water and vegetable particles and flush with water. This should be done after each use.

At the end of the day disassemble the machine and thoroughly clean the cutting plates and disks. Carefully inspect each part for strings of vegetables that may not have washed off.

This machine has parts that must be oiled daily to prolong the life and efficiency of the machine.

- Always make sure the guide is securely tightened after the adjustment for the thickness of the meat slices has been determined. Set the blade guide 2 inches above the meat
- Always keep your hands on the part of the meat that is most distant from the saw blade

- Make sure the blade guard is in place at all times except when cleaning.

KNIVES

Many different sizes and shapes of knives are required for meat-cutting jobs. You must understand which knife to use for each job and make sure to use it for the job it was intended. You should never use the thin-bladed knife that is designed for carving cooked meats to bone a roast. It is quicker and more efficient to use the boning knife that has a stiff, narrow, short blade to cut close around bones. The knives with the long, wide blades are used to cut steaks and roasts before they are cooked.

Sharpening Knives

To get the most use out of the knives in the galley, they must be sharp. A dull knife is a hazard and makes extra work for you. A boning knife has a comparatively narrow bevel and will stand more hard use than a steak knife that has a wide bevel and a thin edge. But no matter what tool you use, you cannot do a good job unless the tool is sharp. The butcher's steel is used only to keep the edges of knives straight and not to sharpen them. Nor should you sharpen knives on a power or hand-driven stone, since this removes the temper from the cutting edge. The best things to use for sharpening are a waterstone and a carborundum oilstone. If you use the entire stone when sharpening tools the stone will not hollow out at any one point. Draw the full blade, from heel to tip, across the length of the stone and then turn the knife over and pull it back from the opposite end of the stone. This sharpens the knife evenly and smoothly and causes the stone to wear uniformly. Always clean the blade and handle thoroughly after sharpening.

Steeling

In steeling, there is a definite technique. Specific types of steels should be used to true certain edges. Never use rough steel. Smooth steel should be used to keep the blade in perfect condition and to maintain a keen edge. The steel should have good magnetism in order to hold steel particles. The easiest and most effective methods of steeling a knife are as follows:

- Hold the steel firmly in the left hand, thumb on the top of the handle under the guard, with the point upward and slightly away from the body
- Place the heel of the blade against the top side of the tip of the steel. The steel and the blade should meet at an angle of about 25 degrees
- With a quick swinging motion bring the blade down across the steel toward the left hand. This should pass the entire edge lightly over the steel
- Bring the knife into position again but with the blade against the bottom side of the steel. Then, repeat the same motion of passing the blade over the steel
- Repeat the motion, alternating the knife from side to side; a dozen strokes will true the edge. Steel your knives as often as necessary to keep their edges straight.

Care of Knives

Never throw knives into a drawer with other cutlery or tools. It is a good idea to have a knife rack for each watch fastened to some convenient place in the galley. Do not use knives to open cans, cut wire bands, or open cases of "foodstuffs".

DISHWASHING MACHINES

Proper operation and care of dishwashing machines are vital to the sanitation, safety, and efficiency of your activity, so you must know your machines and follow directions for their use and maintenance.

Dishwashing machines used in the Navy are classified as one-tank, two-tank or three-tank machines. The three-tank machine is a fully automatic, continuous racking machine that scrapes, brushes and provides two rinses. It is used at major recruit installations and other large activities.

Single-tank Dishwashing Machine

Single-tank machines (Figure 6-7) are used in small ships or small messes whereby installation of larger dishwashing machines is not feasible and practical.

Wash and rinse sprays are controlled separately by automatic, self-opening and self-closing valves in the automatic machine, or by handles in the manually operated machine. The automatic machine provides for a 40-second wash and a 10-second rinse; for manually operated machines, wash and rinse intervals are controlled by the operator who should allow a 40-second wash and a 10-second rinse.

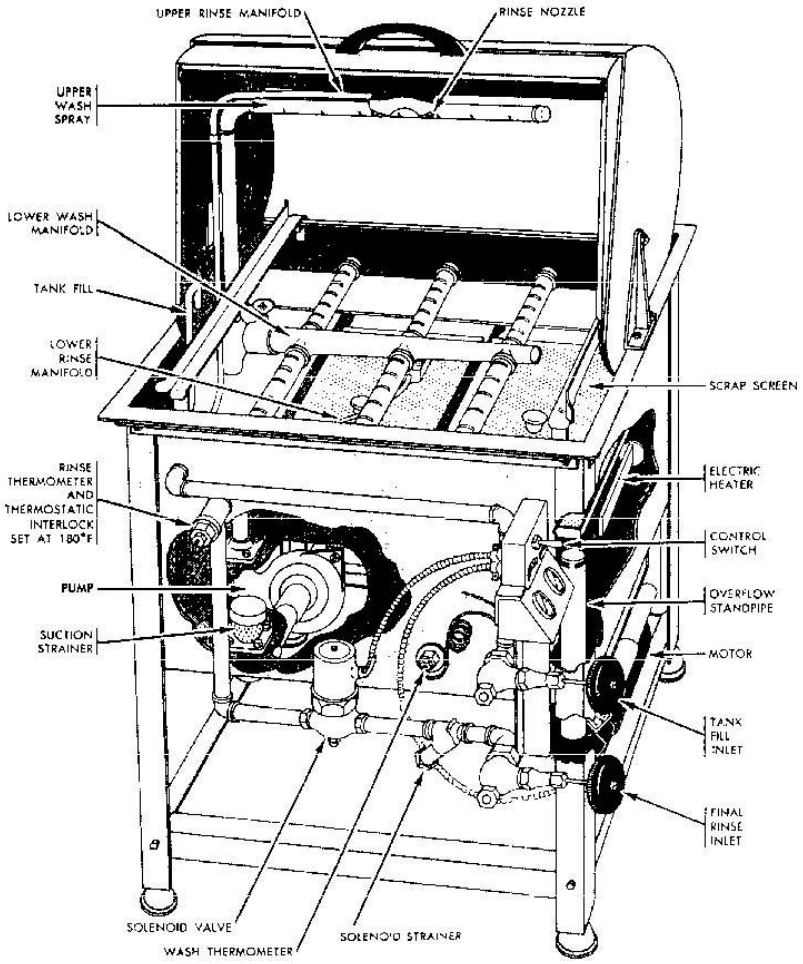


Figure 6-7, Single-tank dishwashing machine.

To control the bacteria to a satisfactory minimum in single-tank machines, it is necessary that the temperature of the wash water in the tank be 160 °F.

Rinsing is done by means of spraying hot water on the dishes from an outside source and is controlled by an adjustable automatic steam-mixing valve that maintains the temperature of the rinse water between 180°F to 195°F.

Double-tank Method

Double-tank machines (Figure 6-8) are available with several different capacities and are used when more than 150 persons are to be served. These machines are provided with separate wash and rinse tanks. They also have a final rinse of hot water that is sprayed on the dishes from an outside source. This spray is opened by the racks passing through the machine. The spray automatically closes when the rinse cycle is completed. The final rinse is controlled by an adjustable automatic steam-mixing valve that maintains the temperature between 180°F to 195°F. Double-tank machines are also equipped with a thermostatically operated switch in the rinse tank that prevents operation of the machine if the temperature of the rinse water falls below 180°F. The racks pass through the machine automatically by means of conveyor chains. The two-tank dishwashing machine should be timed so that the utensils are exposed to the machine sprays for not less than 40 seconds (20-second wash, 20-second rinse).

Triple-tank Dishwashing Machines

Some shore activities have triple-tank dishwashing machines installed. The procedures of operation are basically the same as with double-tank machines.

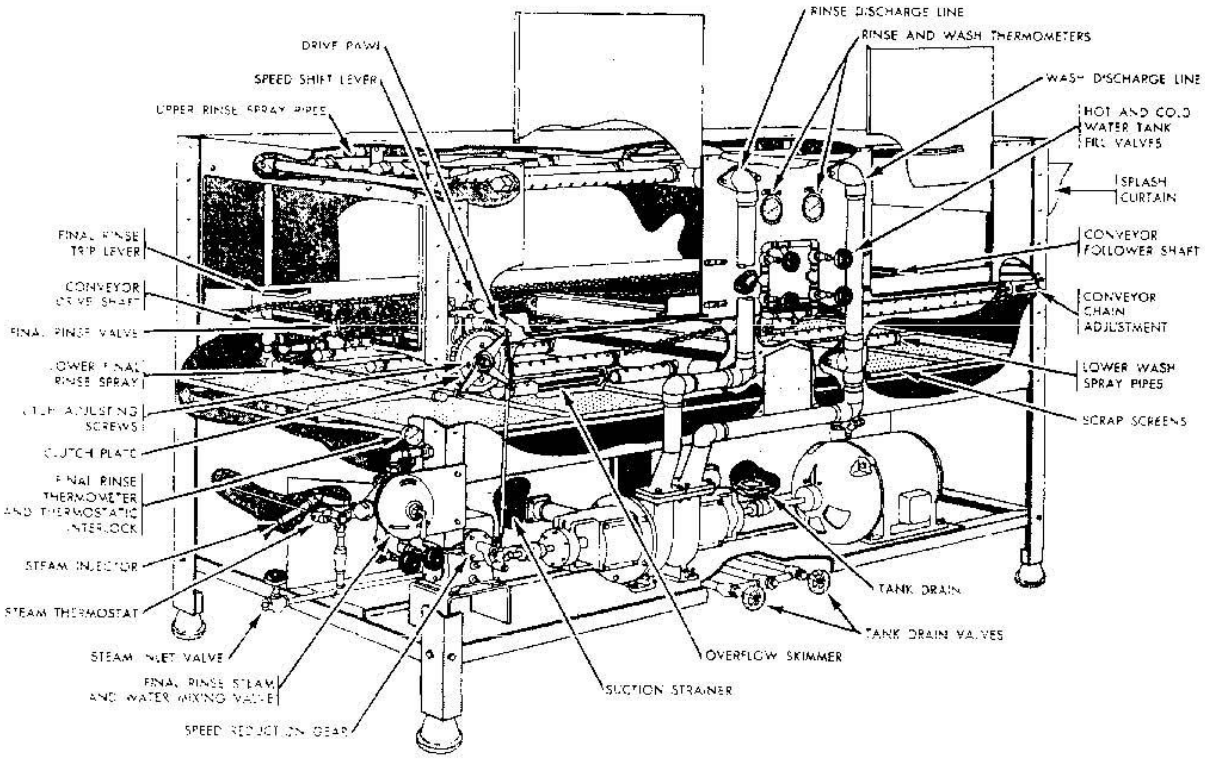


Figure 6-8, Double-tank dishwashing machine.

DESCALING DISHWASHING MACHINES

The interior of the dishwashing machine and the manifold(s) should be cleaned after each use and inspected weekly for accumulation of calcium or lime deposits. If deposits are evident, the machine must be descaled.

Descaling the machine should be a part of the PMS and is the responsibility of the foodservice division. The descaling operation must be closely supervised from start to finish, and personnel must wear face shields, chemical safety goggles, rubber gloves, and rubber aprons when handling acid.

GARBAGE GRINDER

Garbage grinders are found in sculleries and deep sinks. They are used to dispose of food from plates, unused food items, and other wet garbage. Always read the operating instructions posted near the grinder before using.

To clean the tank, dump a bucket of strong, hot detergent solution into the tank and scrub the interior. Rinse by flushing the interior walls with hot water. Clean exterior by scrubbing with hot detergent solution, then rinse. For proper guidance and safety, refer to Chapter 8 of the Food Service Operations Handbook.

STEAM TABLE

Steam tables are used for serving hot foods. There are several types: (a) those with steam-heated water compartments and dish warmers; (b) those with water compartments heated by immersion-electric heating elements; and (c) dish warmers.

Operation

Do not overload food pans. An excessive amount of food makes it difficult to maintain the correct water compartment temperature which is between 180°F to 200°F. Keeping this temperature range will ensure the proper serving food temperature of 135°F. If, on the other hand, water in the steam table is allowed to become hotter than 200°F, the food will dry rapidly and continue cooking from the excess heat. You can correct this by adding more water to reduce the heat. Food should be served within 30 minutes (preferably within 15 minutes) after being placed on the steam table, do not place food pans on the steam table too early.

Care and Cleaning

After each meal, drain the steam table, wash the tanks with hot soapy water, and rinse with hot fresh water. Wash the top and front of the steam table to make it bright, clean, and sterile; then wipe it dry with a clean cloth.

ELECTRIC TOASTERS

Electric toasters used in the galley and dining area are the intermittent and rotary types. The intermittent type is composed of chrome-plated steel and has a vertical oven with two to four openings for inserting the bread slices. The continuous type has a chrome-plated heavy-duty conveyor with motor-driven trays for the bread.

De-energized toaster before cleaning. After toaster is cooled, remove pan, slide and baskets. Use soft brush to remove crumbs from front surface and behind bread racks. Wipe clean frame as far as is accessible with warm hand-detergent solution. Use a nonabrasive cleaner to remove stubborn spots. Clean baskets by boiling in hot detergent water, rinse, and air dry. Then, clean and replace all parts.

REACH IN REFRIGERATORS

Refrigerators are designed for storing foods for short periods of time. Most refrigerators installed aboard ship have movable bars that fit in front of each shelf to keep the contents of the refrigerator from moving or falling out when the door is opened. At sea, food must be stored in such a way that it will not move around when the ship rolls. To keep a refrigerator operating at top efficiency, ensure that it is clean, neat and organized.

REFRIGERATED SALAD BAR

Mechanically refrigerated self-service cold food counters with refrigerated (salad bars) storage compartments are procured in various sizes from three-to six-pan compartment capacity with either a single door or double doors underneath storage areas.

REFRIGERATED MILK DISPENSERS

Refrigerated milk dispensers are used to dispense bulk milk. They are available with one, two, or three dispensing units. The size of the mess and the number of personnel fed will determine which milk dispensing unit is installed.

SOFT-SERVE ICE-CREAM MACHINE

This machine is usually located in the messing area and the patrons serve themselves. The CSs are responsible for preparing the ice-cream mix and cleaning and sanitizing the machine. It is a must that the machine be sanitized before and after each use. Follow the procedures of operation according to the technical manual or the operation procedures posted next to the machine.

COFFEE MAKERS

Coffee makers used in the GM are normally electric and may be of different types. The automatic twin coffee urn and the automatic coffee maker (Figures 6-9 and 6-10) are the types used most often in general and private messes.

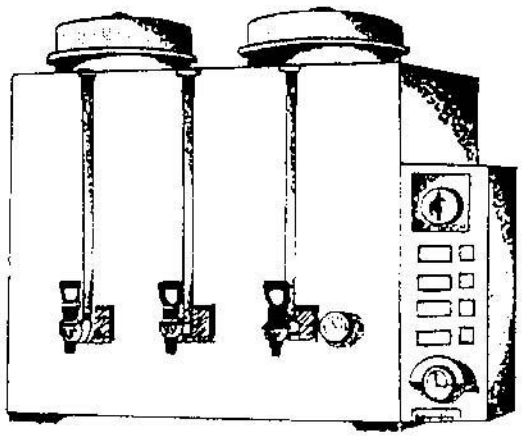


Figure 6-9, Automatic twin coffee urn.

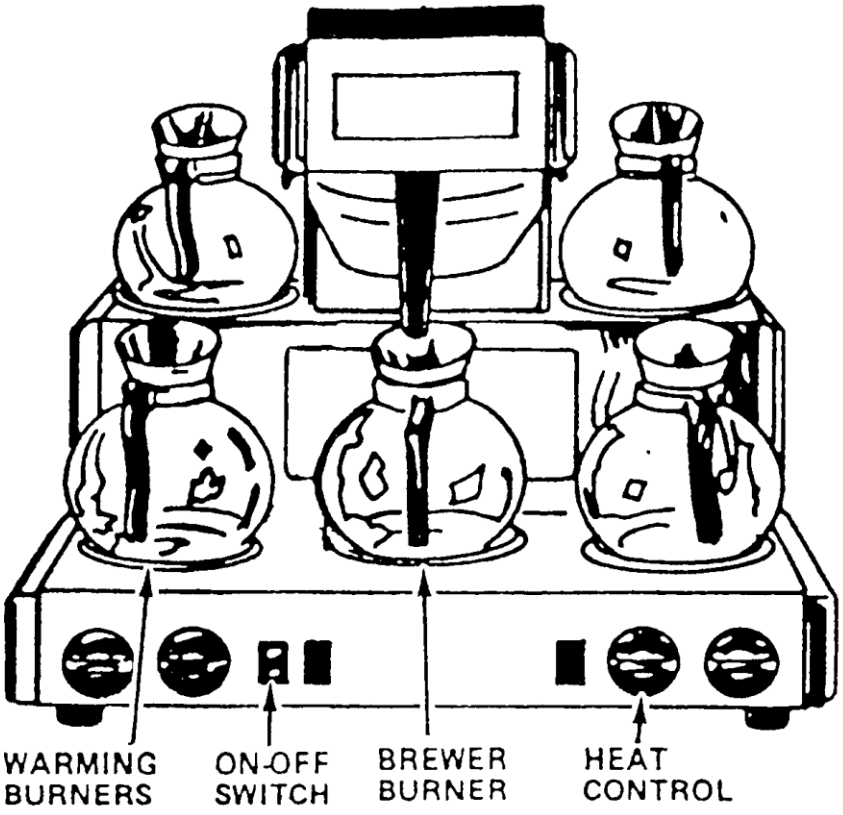


Figure 6-10, Automatic coffee maker.

Operation of the Automatic Twin Coffee Urn

To brew coffee, turn thermostat dial to the BREW position. Observe dial thermometer on front of the urn. When brewing temperature is at the high end of brew zone on dial, the urn is ready to brew coffee.

Place paper filter or muslin leecher bag in brew basket. Place desired amount of coffee in filter (use urn grind coffee in 3-gallon urn and regular grind in larger urns), replace cover and place brew basket in position over coffee liner. When using muslin bag, be sure bag is soaked with cold water before using, and, if a new bag, be sure to wash out all sizing with warm water. Swing spray arm from the PARK position over brew basket and center spray nozzle over brew basket. Push timer knob. After the timer has completed its cycle, the orange brewing light will go out, showing that the proper amount of water has been sprayed. Within 3 minutes the brew basket with spent coffee grounds should be removed from urn. To do so, swing the spray arm back to the center PARK position. The spray arm should always be parked in this center position so expansion drippage will go back into tank. Do not leave the brew basket in liner over 5 minutes, if possible. Remove cover and brew basket and then always replace cover over coffee liner. Rinse out muslin leecher bag and store in cold water until ready to use.

Keep the thermostat dial at the HOLD position during all standby periods so that the urn is ready to brew coffee at any time, with no waiting. Merely turn thermostat to the BREW position so the pilot light lights up during brewing. During shutoff periods, turn thermostat to OFF. After all night or weekend shutoff, a minimum of at least 55 minutes is required to obtain the proper brewing temperature. On twin models, water for tea may be drawn from center faucet. Manual refill is required unless equipped with auto refill.

Destaining a Coffee Urn

The procedures for destaining coffee urns are as follows:

1. Fill urn with destaining compound solution. Fill urn with 175°F water. Add destaining compound (stain remover, tableware, in this ratio: 2 tablespoons per 5 gallons of water or as directed by manufacturer).

2. Draw off mixture and re-pour. Open spigot and draw off 1 gallon; thoroughly remix to allow mixture to come into faucet. Allow solution to stand for 1 hour at 170°F to 180°F. Stir occasionally.

3. Scrub urn liner and gauge glass. Use long-handled brush to loosen scales.

4. Clean faucet. Take faucet valve apart and clean all components. Soak in hot water until reassembled.

5. Rinse and reassemble faucet valve. Rinse urn liner three or four times carefully with hot water. Repeat until all traces of compound are removed.

NONCARBONATED BEVERAGE DISPENSER

Noncarbonated beverage dispensers are usually located in the dining area to dispense fruit juices, lemonade, iced tea and other popular beverages. These dispensers have a self-contained refrigeration unit and a circulating pump to keep the beverages thoroughly mixed and to promote uniform cooling. The beverages are dispensed from a clear plastic tank.

BULK ICE-MAKING MACHINE

This machine requires little maintenance by foodservice personnel, but should be closely monitored. Ice is easily contaminated; therefore, the following strict measures should be taken:

- Only authorized personnel should have access to the machine. The ice bin should be locked
- The ice scoops shall be stored handle up in a freely draining metal bracket outside the ice storage compartment or in a metal bracket installed within the machine at such a height to preclude the scoop being covered by the ice
- A monthly cleaning is required.

ICE-DISPENSING MACHINE

These machines are highly appreciated by the dining patrons, particularly during the hot months of the year. It is recommended that the machine be secured except during meals to make sure a sufficient supply of ice is available. If the machine becomes empty during service, it should be immediately disconnected or turned off to prevent damage to the dispensing assembly.

BENCH-TYPE CAN OPENER

Can openers are often neglected in foodservice. They are used so much that when neglected they could be a ready source of food contamination. Therefore, keeping them in good operating condition and in a high degree of cleanliness is a must.

SUMMARY

In this chapter we discussed the different types of equipment being used in today's food service operations. We briefly discussed the proper operations, care, and cleaning of each equipment. Ensure to check the additional guidelines on Navy Food Service Operations Handbook and the Naval Medical Publications 5010 (NAVMED P-5010). Always remember to apply safety when working with all foodservice equipment.

CHAPTER 7

FOOD PREPARATION

***LEARNING OBJECTIVES**: Upon completion of this chapter, you should be able to do the following:*

— Know what a Recipe Card consists of and properly adjust recipes.

— Identify the different forms of eggs and there safe holding temperatures.

— Discuss the preparation and cooking methods of fruits and vegetables.

— Have a better understanding of sandwich production.

— Know the four different kinds of soups.

INTRODUCTION

The objectives of good food preparation are to conserve the nutritive value of the food, to improve the digestibility, to enhance flavor, to develop attractiveness of the original color, shape, form and texture and also to free the food from injurious organisms and substances.

BASIC GUIDES

The quality of food prepared in the Wardroom, Chief Petty Officer and General Messes (GM) can be controlled to a great extent by the use of management tools. These tools provide guidance for the Culinary Specialists (CS's) assigned by giving them a clear understanding of why they are there and how they promote efficiency and quality. These tools are the General Mess Menu, ***Armed Forces Recipe Service*** (AFRS), NAVSUP P-7 and the Food-Preparation Worksheet, NAVSUP Form 1090.

FOOD-PREPARATION WORKSHEET

The first requisite to good cooking is an accurate knowledge of the items to be prepared. CS personnel have specific instructions on which foods to prepare, the recipe card number, the number of portions to prepare, time to start preparations, special instructions from the Leading Culinary Specialist (LCS) and serving instructions. These instructions are furnished on the Food-Preparation Worksheet, NAVSUP Form 1090. See Figure 7-1.

REQUIRED USE

This worksheet is required for all GMs; however, GMs having fewer than eight CSs may use a modified food-preparation worksheet (Figure 7-2). GMs with only one CS are not required to use the worksheet.

PREPARATION

The information listed on the food-preparation worksheet becomes a written directive for passing information from the LCS to the Watch Captains and other personnel involved in the preparation of the food. The reverse side of the worksheet maybe used to record temperature readings, meat breakout requirements, serving line and scullery temperatures and any additional information required by

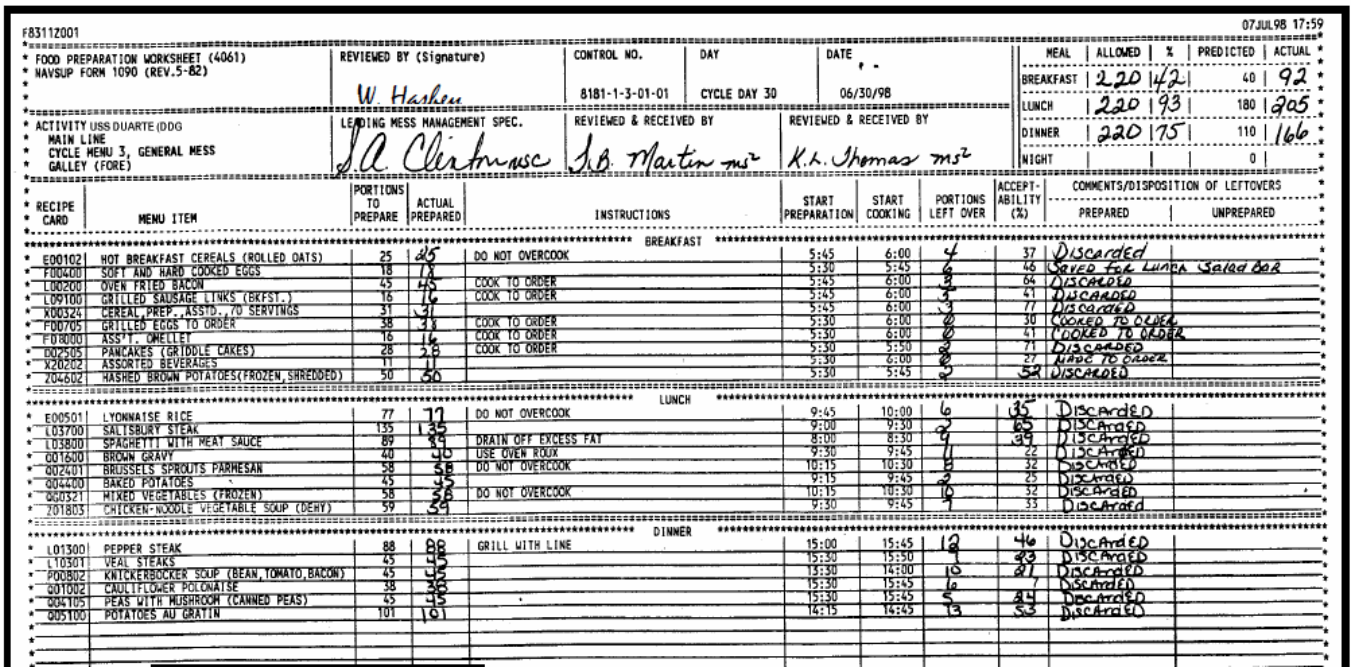
the Food Service Officer (FSO). The food-preparation worksheet is also a valuable record of the menu for the day. Information that is a "must know" for any person supervising a GM can be posted on it. This information includes the number of persons actually fed and the acceptability of specific menu items. Also, this information is useful when the LCS prepares future menus and food-preparation worksheets. Refer to NAVSUP P-486, for detailed instructions on preparing the NAVSUP Form 1090.

The food-preparation worksheet is retained for a period of Current month and previous three months for ashore and afloat activities.

SEPARATE WORKSHEET

At most large GMs, food-preparation worksheets for each work center are prepared. This eliminates the necessity to include the vegetable preparation room, bakeshop and meat preparation room on the reverse side of the food-preparation worksheet.

FOOD PREPARATION WORKSHEET
(NAVSUP FORM 1090)



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FOOD PREPARATION WORKSHEET (4061) / NAVSUP FORM 1090 (REV.5-82)

REVIEWED BY (Signature): W. Hashow
CONTROL NO.: 8181-1-3-01-01
DAY: CYCLE DAY 30
DATE: 06/30/98

ACTIVITY USS DUARTE (DDG)
MAIN LINE
CYCLE MENU 3, GENERAL MESS
GALLEY (FORE)

LEADING MESS MANAGEMENT SPEC.: J.A. Clintmasc
REVIEWED & RECEIVED BY: J.B. Martin MS2
REVIEWED & RECEIVED BY: K.L. Thomas MS2

MEAL	ALLOWED	%	PREDICTED	ACTUAL
BREAKFAST	220	42	40	92
LUNCH	220	93	180	205
DINNER	220	75	110	166
NIGHT			0	

RECIPE CARD	MENU ITEM	PORTIONS TO PREPARE	ACTUAL PREPARED	INSTRUCTIONS	START PREPARATION	START COOKING	PORTIONS LEFT OVER	ACCEPT-ABILITY (%)	COMMENTS/DISPOSITION OF LEFTOVERS PREPARED	UNPREPARED
	BREAKFAST									
E00102	HOT BREAKFAST CEREALS (ROLLED OATS)	25	25	DO NOT OVERCOOK	5:45	6:00	4	37	Discarded	
F00400	SOFT AND HARD COOKED EGGS	18	18		5:30	5:45	8	46	Saved for Lunch Salad Bar	
L00200	OVEN FRIED BACON	45	45	COOK TO ORDER	5:45	6:00	8	64	Discarded	
L09100	GRILLED SAUSAGE LINKS (BKFST.)	16	16	COOK TO ORDER	5:45	6:00	3	41	Discarded	
X00324	CEREAL,PREP.,ASSTD.,70 SERVINGS	31	31		5:45	6:00	3	77	Discarded	
F00705	GRILLED EGGS TO ORDER	38	38	COOK TO ORDER	5:30	6:00	12	30	Cooked to Order	
F08000	ASST. OMELLET	16	16	COOK TO ORDER	5:30	6:00	10	41	Cooked to Order	
G02505	PANCAKES (GRIDDLE CAKES)	28	28	COOK TO ORDER	5:30	5:50	8	71	Discarded	
V20202	ASSORTED BEVERAGES	11	11		5:30	6:00	8	27	Made to Order	
Z04602	MASHED BROWN POTATOES(FROZEN,SHREDDED)	50	50		5:30	5:45	9	52	Discarded	
	LUNCH									
E00501	LYONNAISE RICE	77	77	DO NOT OVERCOOK	9:45	10:00	6	35	Discarded	
L03700	SALTSBURY STEAK	135	135		9:00	9:30	2	65	Discarded	
L03800	SPAGHETTI WITH MEAT SAUCE	89	89	DRAIN OFF EXCESS FAT	8:00	8:30	9	39	Discarded	
G01600	BROWN GRAVY	40	40	USE OVEN ROUX	9:30	9:45	11	22	Discarded	
G02401	BRUSSELS SPROUTS PARMESAN	58	58	DO NOT OVERCOOK	10:15	10:30	5	32	Discarded	
G04400	BAKED POTATOES	45	45		9:15	9:45	2	25	Discarded	
G60321	MIXED VEGETABLES (FROZEN)	58	58	DO NOT OVERCOOK	10:15	10:30	10	32	Discarded	
Z01803	CHICKEN-NOODLE VEGETABLE SOUP (DEHY)	59	59		9:30	9:45	9	33	Discarded	
	DINNER									
L01300	PEPPER STEAK	88	88	GRILL WITH LINE	15:00	15:45	12	46	Discarded	
L10301	VEAL STEAKS	45	45		15:30	15:50	9	89	Discarded	
P00802	KNICKERBOCKER SOUP (BEAN,TOMATO,BACON)	45	45		13:30	14:00	10	81	Discarded	
Q01002	CAULIFLOWER POLONAISE	38	38		15:30	15:45	6	7	Discarded	
Q04105	PEAS WITH MUSHROOM (CANNED PEAS)	45	45		15:30	15:45	5	84	Discarded	
Q05100	POTATOES AU GRATIN	101	101		14:15	14:45	13	53	Discarded	

Figure 7-1.—Example of a Food-Preparation Worksheet, NAVSUP Form 1090.

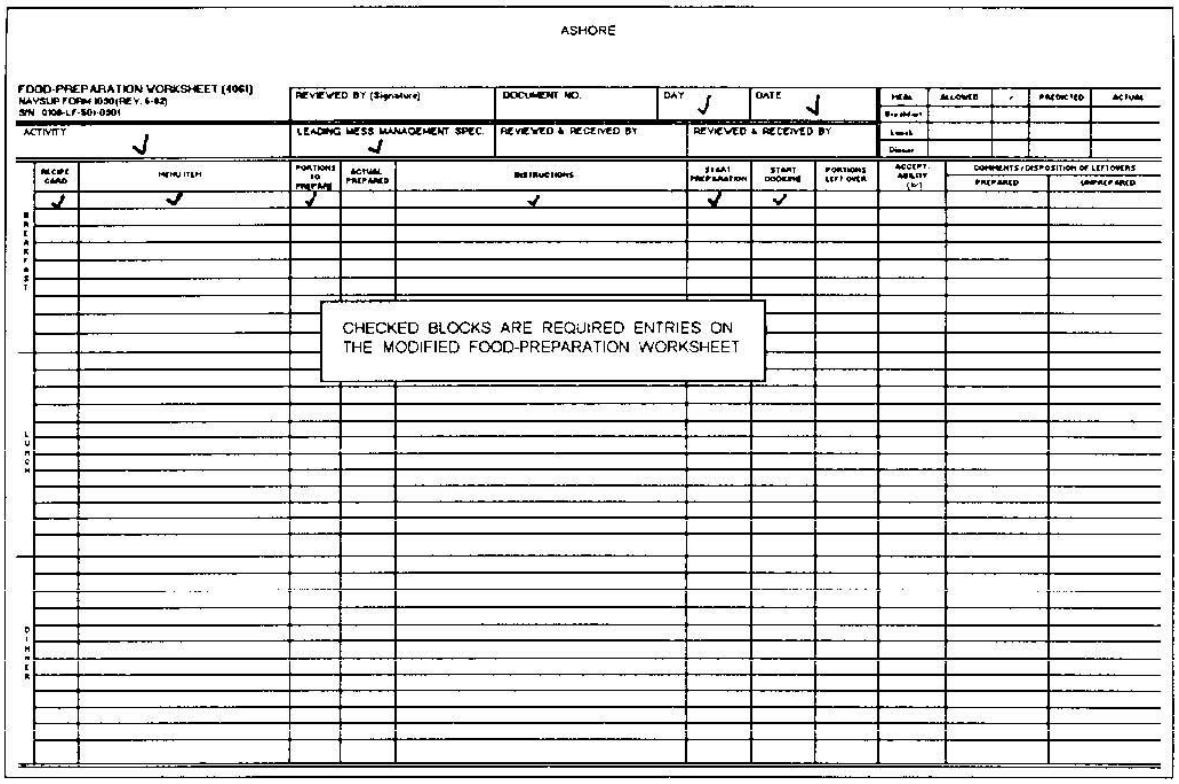


Figure 7-2 – Example of Modified Food Preparation Worksheet with required signatures.

ARMED FORCES RECIPE SERVICE

The AFRS was developed as a joint effort of all branches of the armed forces with the cooperation of the food industry. It consists of over 2,000 recipes including newly developed recipes and guideline cards. The AFRS also contains the following:

- Guidance cards with product usage and preparation information
- How-to-do-it line drawings.

STANDARDIZED RECIPES

All food should be prepared according to the recipes published in the AFRS. All local recipes are properly developed and approved by the FSO.

The use of standardized recipes ensures high quality in food preparation. It also eliminates guesswork and prevents variations in quality and quantity. The use of exact amounts of the various ingredients produces accurate yields, prevents leftovers and promotes food cost control. The food items needed for the day's menu are requisitioned from the bulk storeroom custodian by the watch captain.

YIELD.—Each recipe in the AFRS is designed to yield 100 portions; however, the yield of some recipes is given in numbers or volume; for example, 2 pans, 8 loaves and 6 1/2 gallons, depending upon the food to be prepared.

INGREDIENTS.—Ingredients are listed in the order used. The specific form or variety of each ingredient is indicated; for example:

Flour, general-purpose , Flour, bread

The shape, size, or form of an ingredient is specified; for example:

Ham. cooked, 1/2-inch cubes

Onions, dry, sliced

Nuts, unsalted, chopped

Temperatures of ingredients are specified in many recipes. Descriptive terms are also used; for example:

Egg whites (room temperature)

Liver, sliced, partially thawed

Water, warm (110°F)

MEASURES AND WEIGHTS.—Measures and weights are the exact amount of each ingredient needed for 100 portions. Amounts are listed parallel to the list of ingredients. Quantities of dry ingredients weighing more than 1/2 ounce usually are given as both weights and measures. Most liquid ingredients are measured, not weighed.

On the right side of the Measures column of the AFRS recipe card, a blank space has been reserved for inserting the actual amounts of ingredients needed to prepare the number of portions the individual galley needs. These quantities may be inserted in pencil directly on the recipe card and then changed as necessary.

METHOD.—Method describes how the ingredients are to be combined and cooked and represents the best accepted cooking procedures. For example, the method will describe the best way to sift dry ingredients together, to thicken a sauce, or to fold in beaten egg whites. Methods are standardized since the same terms are used wherever the same technique appears. The method contains directions for the most efficient order of work and eliminating unnecessary tools and equipment and unnecessary steps in preparation.

The directions are stated in simple, clear terms for incorporating the ingredients. Each step begins with an action verb such as dissolve, divide, drain, sift, flatten, cover, pour, sprinkle, or bake. These words are the keys to proper procedures and should be closely followed.

Included under method are specific details such as cooking time.

If certain ingredients are to be set aside for later use, this is so stated. For example, "Gradually add sugar, beat to light, firm peak. Set aside for use in step 6."

In a few instances, serving suggestions are included under method. For example, "Serve with lemon sauce (Recipe No. K-9) or, if desired, top with whipped cream (Recipe No. K-15)."

ABBREVIATIONS.— The basic abbreviations used in the AFRS are as follows:

Volume:

tsp = teaspoon(s)

tbsp = tablespoon(s)

c = cup(s)

pt = pint(s)

qt = quart(s)

gal = gallon(s)

Ingredients:

A.P. = as purchased

E.P. = edible portion (for example, potatoes, peeled, prepared for cooking)

Temperature:

F = degrees Fahrenheit

Weights:

oz = ounce(s)

lb = pound(s)

Containers:

cn = can(s)

cyl = cylinder(s)

jr = jar(s)

*NOTES.—*Notes appearing below the recipe contain supplemental information such as possible substitutions for ingredients. Specific techniques are included to supplement information contained in the Method column; for example, "If a candy thermometer is not available, heat mixture in step 1 until it forms a soft ball in cold water." Serving tips also may be included as notes; for example, "If desired, top with whipped cream (Recipe No. K-15) before serving." "In step 3, if convection oven is used, bake at 350°F for 20 to 25 minutes."

*VARIATIONS.—*Variations are included on many recipes. They describe different ways to prepare the product and constitute a major addition to the total number of recipes contained in the AFRS. Each variation is listed as a separate recipe in the index. For example, the recipe for yellow cake includes these variations: (1) banana-filled layer, (2) Boston cream pie and (3) chocolate cream. The variations in this instance are named according to the principal ingredient that alters the basic recipe.

In other recipes where different cooking techniques are used, these may determine the name of the variation.

RECIPE SUPPLEMENTS

Recipe supplements are the written source that explains how to prepare certain types of basic food. Included as recipe supplements are guideline cards, index cards and index of recipes.

GUIDELINE CARDS.—Guideline cards are found in section A and provide direction for recipe preparation some of the recipe sections are directions for preparing a basic type of food. For instance, a guideline card is used for the makeup of piecrust for a one-crust pie and a two-crust pie. This guideline card eliminates the need to repeat this information on the many different recipes using piecrust.

Guideline cards in the salad, fish, poultry and vegetable sections include breakout information and the size, count and recommended use of products. In other instances, a guideline card is used instead of, or as a summary of, recipe information. For instance, in the Vegetable section guideline cards are included for preparing canned, fresh and frozen vegetables.

INDEX CARDS.—Index cards are found at the beginning of each section and give a complete listing in alphabetical order by type of food or dish of all recipes contained in that section.

An additional breakdown of the index is given for recipe variations. For example, under Yellow Cake, nine variations are listed alphabetically. Indexes are valuable tools for finding and using appropriate recipes.

INDEX OF RECIPES.—The separate, consolidated index of recipes in the AFRS is a valuable reference for menu planners. The recipes in this index are grouped conveniently as follows:

A. General Information

B. Appetizers

C. Beverages

D. Breads and Sweet Dough's

E. Cereals and Pasta Products

F. Cheese and Eggs

G. Cakes, Fillings and Frostings

H. Cookies

I. Pastry and Pies

J. Puddings and Other Desserts

K. Desserts (Sauces and Toppings)

L. Meat, Fish, Poultry

M. Salads, Salad Dressings and Relishes

N. Sandwiches

O. Sauces, Gravies and Dressings

P. Soups

Q. Vegetables

The General Information section of the AFRS has guidelines for basic information. One of the first things you should do is become familiar with this section.

RECIPE ADJUSTMENTS

All the recipes contained in the AFRS are based on a standard of 100 portions. However, the number of patrons served per day (or per meal) changes constantly, requiring changes in the quantities of food being prepared. There are various types of recipe adjustments.

YIELD ADJUSTMENT. — To increase or decrease a recipe to obtain the desired number of portions, it is necessary to obtain a working factor. Multiply the quantity of each ingredient by the working factor and convert the quantity into a workable unit as follows:

Step 1. To obtain a working factor, divide the number of portions desired by 100.

Example:

$\frac{348 \text{ (number portions desired)}}{100} = 3.48$ (working factor) or

348 ÷ 100 = 3.48.

Step 2. To determine the quantity of each ingredient to use, multiply the quantity of each ingredient listed in the recipe by the working factor obtained in step 1.

Example:

1.25 cornstarch (quantity in recipe) x 3.48 (working factor) = 4.35 lb cornstarch (quantity to use).

QUANTITY ADJUSTMENT.— A recipe maybe adjusted on the basis of the quantity of an ingredient to be used. To obtain a working factor, divide the number of pounds you have to use by the number of pounds required to yield 100 portions:

$\frac{102 \text{ lb (quantity to be used)}}{30 \text{ (number pounds to yield 100 portions)}} = 3.40$ (working factor) or

102 ÷ 30 = 3.40.

SERVING SIZE ADJUSTMENT.—Recipes may be adjusted to yield a specific number of portions of a specific size as follows:

Step 1. Divide the desired portion size by standard portion of the recipe.

Example:

$$\frac{\text{3 oz (desired size)}}{\text{4 oz (standard portion size)}} = 0.75 \text{ (size factor) or}$$

$3 \div 4 = 0.75.$

Step 2. Multiply the number of portions needed by the size factor and divide the answer by 100 to obtain the working factor.

Example:

348 (number portions desired) x 0.75 (size factor) = 261.

$$\frac{261}{100} = 2.61 \text{ (working factor) or } 261 \div 100 = 2.61.$$

Step 3. Multiply the quantity of each ingredient in the recipe by the working factor to determine the quantity to use.

Example:

2 lb cornstarch (quantity in recipe) x 2.61 (working factor) = 5.22 lb cornstarch (quantity to use).

Volume Adjustment

First obtain a working factor by dividing the number of servings needed by 100 as shown in step 2.

333 ÷ 100= 3.33.

Then multiply the quantity of each ingredient by the working factor. You will round off to the nearest 1/4 teaspoon. For example, the recipe calls for 6 gallons of water per 100 portions. Portions to prepare are 333.

333 ÷ 100= 3.33 working factor (w/f).

Step 1. w/f x gallons (recipe)= gallons to use 3.33 w/f
x6 gl
19.98 gl

Step 2. Decimal (of gal) x 4 = quart .98 gl
x4 qt
3.92 qt

Step 3. Decimal (of quart) x 2 = pint .92 qt
x2 pt
1.84 pt

Step 4. Decimal (of pint) x 2 = cup .84 pt
x2 c
1.68 c

Step 5. Decimal (of cup) x 16= tablespoon .68 c
x16 tbsp
10.88 tbsp

Step 6. Decimal (of tbsp) x 3 = teaspoon .88 tbsp
x3 tsp
2.64 tsp

Step 7. Round off tsp decimal portion .64 tsp is equal to 3/4 tsp

Thus, the amount of water needed for 333 portions is 19 gal, 3 qt, 1 pt, 1 c, 10 tbsp and 2 3/4 tsp.

CONVERTING AND ROUNDING CALCULATED QUANTITIES.—When a recipe is increased or decreased or ingredient quantities are altered it is usually necessary to convert the amount calculated to another unit of measure because, in most instances, a part of a pound or a partial measure results. To obtain a usable figure, (a) round off the calculated figure given in decimal pounds or measures to a whole figure or (b) convert partial pounds into ounces and the partial measures into smaller units; for example, partial quarts into cups.

CONVERTING FRACTIONAL WEIGHTS.—When increasing or decreasing recipes, the division or multiplication of pounds and ounces is expressed as decimals to simplify cumbersome fractions. For example, if the quantity of an ingredient is multiplied by a working factor, the calculation is as follows:

1.25 lb x 3.48 (working factor) = 4.35 lb.

The quantity, 4.35 pounds, could be expressed by converting the fractional part of the pound into ounces.

Another means of converting fractional parts of a pound is to make the calculation instead of consulting the conversion table. The part of the pound is converted to ounces by multiplying the figure by 16 ounces.

For example: 0.35 x 16 oz = 5.60 oz.

ROUNDING OFF WEIGHTS.— After the part of the pound has been converted to ounces (0.60), as indicated in the Recipe Conversion Card A-1(1), decimals may be rounded off to provide whole units of weights or measure. Round off decimal weights as follows:

Decimal	Round to
0.01 to 0.12	0.00 or oz
0.13 to 0.37	0.25 or 1/4 oz
0.38 to 0.62	0.50 or 1/2 oz
0.63 to 0.87	0.75 or 3/4 oz
0.88 to 0.99	1.00 or 1 oz

Using the previous example, the 4.35 pounds (or 4 pounds 5.60 ounces) would be rounded to 4 pounds 5 1/2 ounces.

ROUNDING OFF VOLUME MEASURES.—When converting volume measures, rounding off is also necessary. Round off volume measures as follows:

Calculated volume

Measure	Round to
5 gal or more	Closest full qt
5 1/4 qt to 4 3/4 gal	Closest full cup
5 1/4 cups to 5 qt	Closest full 1/2 cup
2 3/4 to 5 CUPS	Closest full 1/4 cup

If the quantity being measured is less than a quart, it is more practical to adjust the volume to tablespoon and teaspoon measures as follows:

Calculated volume

Measure	Round to
1 1/4 to 2 1/2 cups	Closest tbsp
9 tbsp to 1 cup 3 tbsp	Closest tsp

5 to 8 tbsp. . . . . .Closest 1/2 tsp

Under 5 tbsp . . . . . Closest 1/4 tsp

To convert volume measures from gallons, quarts, cups, tablespoons and teaspoons, see Figure 7-3.

GALLONS	QUARTS	PINTS	CUPS	FLUID OUNCES	TABLESPOONS	TEASPOONS
1.00	4.0	8.0	16.0	128.0	256.0	768.0
.50	2.0	4.0	8.0	64.0	128.0	384.0
.25	1.0	2.0	4.0	32.0	64.0	192.0
.12	.5	1.0	2.0	16.0	32.0	96.0
.06	.25	.5	1.0	8.0	16.0	48.0
....	.125	.25	.5	4.0	8.0	24.0
....	....	.125	.25	2.0	4.0	2.0
....	....	....	.125	1.0	2.0	6.0
....	....	....	....	.5	1.0	3.0
....	....	....	....	....	.33	1.0

Figure 7-3, Equivalents of volume measurements.

MEASURING UTENSILS

Measuring utensils include both measuring spoons and volume measuring pitchers. Measuring spoons (Figure 7-4, view A) are used for both liquid and dry ingredients and come in four basic sizes. Measuring pitchers (Figure 7-4, view B) also come in four basic sizes (gallon, quart, pint and cup) and are described as follows:

- The 1-gallon measure is used mostly for liquids. Markings go completely around the utensil in 1-quart increments
- The 1-quart measure is used mostly for liquids. Markings go completely around the utensil in 1-cup increments
- The 1-pint measure is used mostly for liquids. Measurement markings go completely around the utensil in 1/2-cup increments
- The 1-cup measure is used for both liquid and dry ingredients. Measurement markings are on both sides:

  -One side is marked in 1/4-cup, 1/2-cup, 3/4-cup and 1-cup increments

  -The other side is marked in 1/3-cup, 2/3-cup and 1-cup increments.

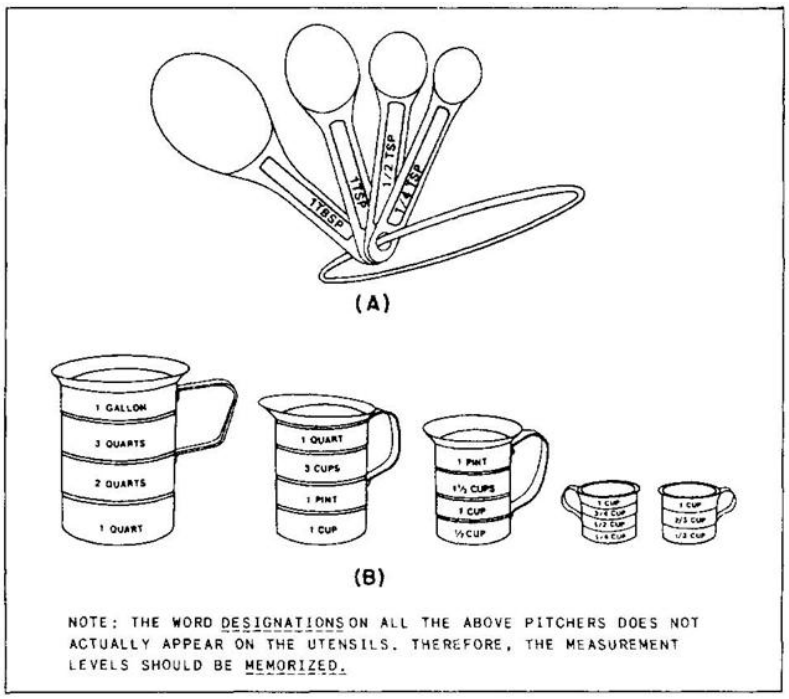


Figure 7-4, Measuring utensils (views A and B).

Measuring utensils are accurate and easy to use. However, they must be used properly to obtain high-quality products. Figure 7-5 shows the measurement equivalents for both types of measuring utensils.

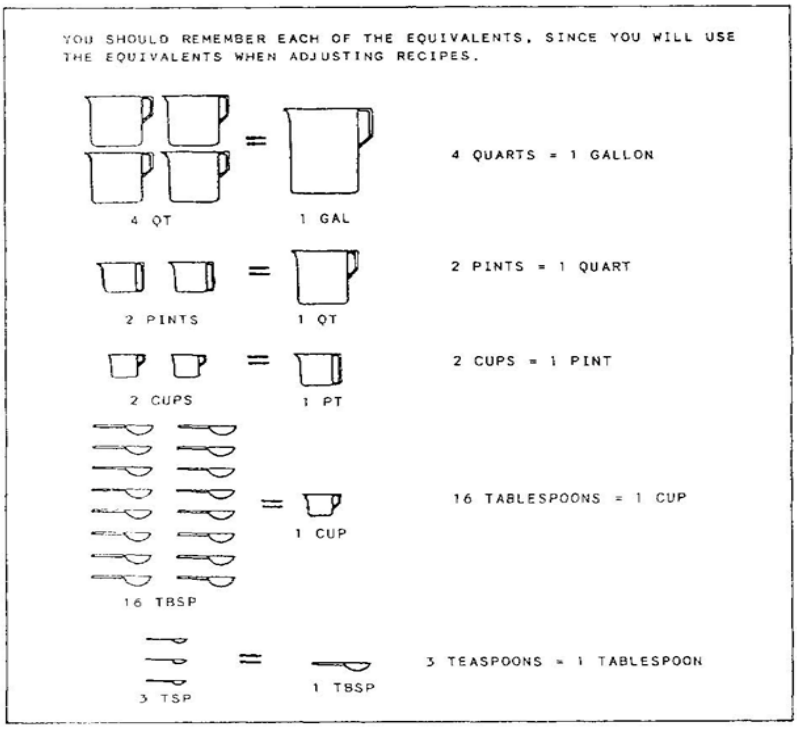


Figure 7-5, Equivalents of measures.

EVEN BALANCE SCALE

The even balance scale (Figure 7-6) is normally used to weigh solid and dry ingredients before mixing. It may also be used to weigh products shaped or formed during preparation to ensure portion control.

Figure 7-6 also shows the parts of the even balance scale. These parts are explained as follows:

1. The stand (or base) supports the entire mechanism.

2. The weight plate is where the counterweights are placed for weighing ingredients.

3. The location of the slide bar and the scoop plate.

4. The scoop holds ingredients being weighed. The scale must be balanced to the scoop (as explained later).

5. Slide bar and weights. Weight is moved to balance the scale. The basic scale, with scoop, can weigh amounts from 1/4 ounce to 16 ounces.

6. The slide bar is divided into 1/4-ounce increments.

7. Counterweights placed on the weight plate weighing more than 16 ounces come in 1-, 2- and 4-pound sizes. Maximum capacity of the scale with counterweights is 8 pounds.

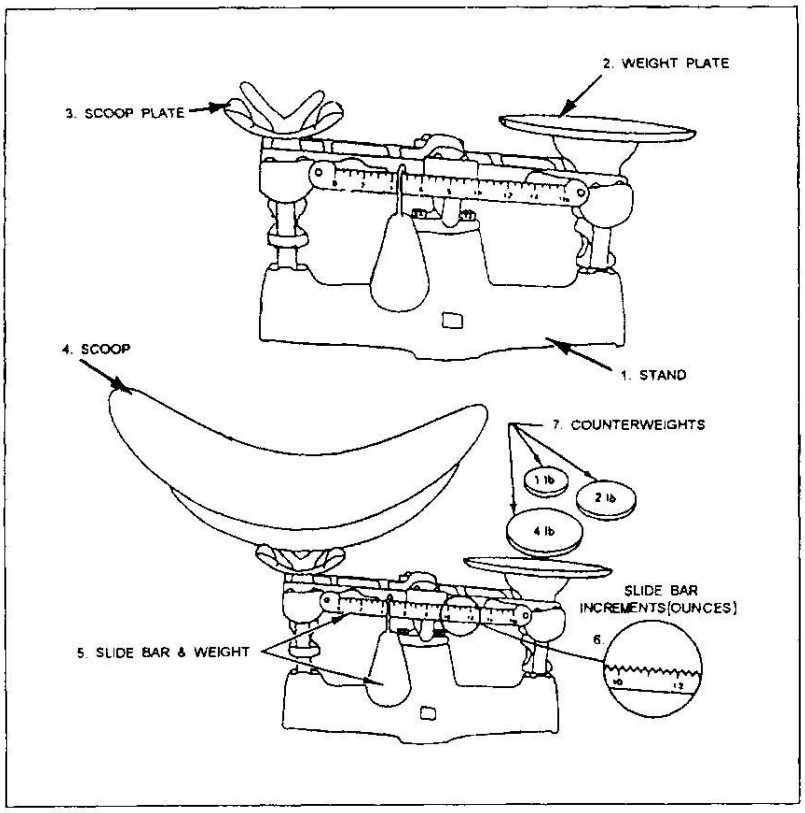


Figure 7-6.—Even balance scale.

BALANCING THE SCALE.—The procedures used to balance the scale are as follows:

1. Place scale on a level surface; then add scoop.

2. Move the slide bar weight completely to the left.

3. Balance the scale to the scoop. If the scale is badly out of balance, lead pellets should be added beneath the weight plate.

USING THE EVEN BALANCE SCALE.—To use the scale proceed as follows:

1. Place wax paper in scoop.

2. Add weights, as required, to weight plate of scale.

3. Adjust slide as required.

4. Place ingredients on wax paper until scale balances.

5. Remove wax paper with ingredients from the scoop and set it aside.

CARE OF THE SCALE.—Wipe the scale with a damp cloth or sponge. Never put the entire scale into the deep sink because it will eventually rust.

Additional information may be found at the Armed Forces Recipe Service (AFRS) website.

BASIC FOOD PREPARATION

Cooking is the art of preparing food in such away that it will appeal to the eye, be tasty, be easily digested and furnish nourishment. This section provides information on food types, methods of cooking and specific preparation techniques that may be used to produce high-quality products.

Safe Holding Temperatures for Cooked Foods

Protein foods that are not served immediately after they are cooked must be either chilled to temperatures of 41°F and lower (but not frozen) or held at 135°F and higher. Protein foods include meats, fish, poultry, gravies, meat stock, soups, eggs, custards, cream fillings and milk. Cooked protein foods that have been held at temperatures between 41°F and 135°F for more than 4 hours should be considered unsafe for consumption and discarded. The exception to this rule is reconstituted dehydrated egg mix. Reconstituted egg mix, if not used immediately, must be placed in a tightly covered container in the refrigerator and used within 1 hour. If foods are refrigerated at intervals and then intermittently permitted to warm up, the total time of the various periods between 41°F and 135°F. must not exceed 4 hours. Protein foods composed of ingredients that are hand-peeled, hand-sliced, or hand-diced after they are cooked should never be used as leftovers. The 4-hour limit between temperatures of 41°F and 135°F is usually taken up in preparing, chilling and serving these foods. Such foods include, but are not necessarily limited to, potato, chicken, turkey, macaroni, shrimp and egg salads. Hand preparation not only increases the chances of contamination, but also increases the length of time that these foods have been held at room temperature.

You should not return opened jars or bowls of mayonnaise and cooked salad dressings from salad bars to refrigerators for reuse at a later meal because of the danger of miscalculation of total lapsed time that these salad dressings have been held at temperatures between 41°F and 135°F. Instead, mayonnaise and cooked salad dressings should be placed on the salad bar in small quantities and must not be returned from the salad bar for reuse. If economically feasible, individual packets or servings of items such as catsup, mustard and mayonnaise should be used on the salad bar. This will prevent waste and be more sanitary.

Care of Leftovers

When leftovers or warm foods are chilled, care should be taken to ensure prompt and thorough chilling (41°F or below) to the center of the food mass. Foods that are to be refrigerated should be placed in shallow pans to a depth of not more than 3 inches and should be covered with lids or waxed paper. Large deep pans must not be used since the center of the food may remain warm long enough to permit the growth of harmful bacteria. Foods to be chilled must be placed in the chill box immediately and the containers labeled with the time and date of preparation. Do not save leftovers for more than 24 hours. Freezing leftovers is prohibited.

EGGS

Eggs are a valuable food. They contain minerals, vitamins and protein that build new body tissues, repair old tissues and regenerate the blood. Eggs are easily digested and, if properly cared for and properly prepared, are delicate in flavor.

Forms of Eggs

The Navy procures eggs in the following forms:

- Shell eggs should be stored at 41°F or below in a dry, well-ventilated place away from strong odors such as onions.
- Shell eggs must be received at 45°F or less and cooled and maintained at 41°F or below.
- When eggs are to be an ingredient in a recipe, or when two or more eggs are to be mixed or beaten together, the eggs shall be broken separately into a small bowl. For individual orders, no more than six eggs will be cracked at once. Use a clean bowl for each six eggs.
- Three kinds of frozen eggs are available: whole table, whole bakery and frozen egg whites. To thaw frozen eggs, place them in a chill box at 32°F to 41°F, or thaw box 36°F to 38°F. *Do not thaw frozen eggs at room temperature*. The outer edges will reach a temperature where bacteria can grow, while the center of the container will remain frozen.

Once the eggs are thawed, they are very perishable. Any leftover thawed eggs should be placed in a tightly covered container in a refrigerator and used within 24 hours. *Do not refreeze* thawed eggs.

Frozen whole table-type eggs should be used for scrambled eggs and omelets. The bakery-type frozen eggs and frozen egg whites should be used only in baking. Egg whites that are used in pie meringues must *be baked as a precaution against food-borne illness*.

Dehydrated egg mix is prepared from fresh whole eggs, nonfat milk, vegetable oil, coloring material and salt. The mix may be used to make scrambled eggs and omelets, French toast, griddle cakes and can be used in place of fresh eggs in baked foods, Reconstituted egg mix, if not used im-

mediately, must be placed in a tightly covered container in the refrigerator and used within 1 hour. Dehydrated egg mix *cannot* be used in uncooked dishes.

Egg Preparation

Guidelines for preparation of raw (fresh) eggs are contained in the General information section of the AFRS. These guidelines are provided because fresh eggs that have been contaminated with salmonella cause outbreaks of food-borne illness. The concern remains for batch preparation of whole, fresh eggs for recipes that are uncooked or almost cooked.

The following principles apply:

- All eggs should be cooked to a minimum internal temperature of 155°F for 15 seconds. Break no more than six eggs per holding bowl. Use a clean sanitized bowl for each 6 eggs
- Serving raw eggs and foods containing raw eggs is *prohibited*
- Recipes requiring uncooked eggs such as mayonnaise, eggnog and ice cream, will be prepared using pasteurized frozen, liquid or dry eggs
- French toast will be prepared using only pasteurized frozen table eggs or pasteurized dehydrated egg mix
- Egg-breaking machines will not be used by Navy and Marine Corps foodservice facilities. Scrambled eggs in bulk amounts may be prepared using pasteurized frozen table eggs, pasteurized dehydrated egg mix, or fresh shell eggs. If fresh shell eggs are used, the following provisions are required:

Cook bulk amount of scrambled eggs in small batches, no more than 3 quarts, until there is no visible liquid egg.

Hold until served at 135°F or higher, such as on a hot food table. Do not add a batch of just cooked scrambled eggs to the batch held on a hot food table.

A clean sanitized container is required for each 3 quarts of scrambled eggs.

Cooking Methods

The AFRS has recipes with detailed procedures for cooking omelets and for fried scrambled, poached and soft- and hard-cooked eggs. Key steps for each of these are summarized as follows.

FRIED EGGS.— Fried eggs are made using only fresh shell eggs. Cook them gently until the white is firm. Fried eggs must be cooked at low temperatures. High temperatures will cause them to be tough. Eggs may be fried in greased pans in the oven. Oven-fried eggs require a slightly longer cooking time than those cooked on a griddle.

SCRAMBLED EGGS.— If scrambled eggs are prepared in bulk for service from steam table inserts, you must follow the provision Scrambled eggs, in bulk amounts, may be prepared using pasteurized frozen table eggs, pasteurized dehydrated egg mix, or fresh shell eggs. If fresh shell eggs are used, the following provisions are required:

- Cook bulk amounts of scrambled eggs in small batches of no more than 3 quarts. Cook to heat all parts of the food to a minimal internal temperature of 155°F (63°C) for at least 15 seconds and until there is no visible liquid egg. Chopped ham or shredded cheese can be added for variety
- Hold until served at 135°F or higher, such as on a hot food table
- Do not combine just cooked scrambled eggs to the batch held on a hot food table. A clean sanitized container is required for each 3 quarts of scrambled eggs.

POACHED EGGS.—Poached eggs are prepared by breaking a fresh shell egg into a small bowl and slipping it from the bowl into boiling water. Then reduce the heat and allow the egg to simmer until the white is fully formed. Finally, remove the poached egg from the water with a perforated spoon.

SOFT-COOKED EGGS.—Remove eggs from the refrigerator about 30 minutes before cooking. Leave the eggs in the shell. Place them in a wire basket and lower the basket into hot water. Bring to a boil; reduce heat; simmer the eggs for 4 minutes.

HARD-COOKED EGGS.—Hard-cooked eggs may be served whole and unpeeled for box or bag lunches, sliced or quartered in salads, as a garnish, or as an ingredient in dishes such as potato salad. Simmer 10 to 15 minutes.

Place hard-cooked eggs in cold water immediately after cooking. This will prevent the yolk from discoloring. Leave them in their shells if they are to be stored in the refrigerator after cooking. They may darken if peeled ahead of time. Leftover, hard-cooked egg yolks may be used to garnish green salads, potato salad, macaroni salad, or cooked vegetables. To prevent the yolk from crumbling when slicing hard-cooked eggs, dip the knife into cold water before slicing.

OMELETS.—Omelets are prepared from fresh whole eggs, frozen whole table eggs, or dehydrated egg mix. The eggs are beaten just enough to blend the yolks and whites. Crumbled bacon, shredded or ground cheese, chopped ham, mushrooms, or vegetables may be added for variety. Individual portions of the eggs are poured onto a greased griddle. The omelet is not stirred during cooking, but is lifted to allow the uncooked portion to flow onto the hot griddle. When the omelet is set, it is folded in half or into thirds, then must be allowed to fully cook.

FRUITS AND VEGETABLES

Fruits and vegetables are complex carbohydrates that provide important vitamins, minerals and dietary fiber. Additionally, they provide pleasant contrasts in flavor, texture and color to meals.

FRUITS

Fruit is procured by the Navy in the fresh, frozen, canned, dehydrated and dried states. Fresh and processed fruits may be combined to vary the flavor and texture.

Every daily menu should include some fruit. It adds color, variety, food value and a refreshing flavor to any meal. Fruit is among the least expensive and the most nutritious of all foods and has the distinction of being the most versatile. At breakfast, fruit can be served alone or in combination with cereal. It can be prepared as appetizers, salads, main dishes, relishes, desserts, or snacks; it is excellent as a garnish and sometimes acts as seasoning. Fruit is an active partner in many meat dishes.

Baked ham and pineapple are often teamed together, as are pork and applesauce, or turkey and cranberry sauce.

FRESH FRUITS.—Fresh fruits are highly perishable and must be handled carefully to maintain quality. Some fruits are available year-round. Others are available seasonally, such as melons and berries.

Before fresh fruits are used, wash them thoroughly to remove any insect spray that may be present. If possible, pare fresh fruits immediately before they are used. When pared and left exposed to the air, some fresh fruits become discolored. Discoloration may be prevented by covering the fruit with lemon juice, or by dipping the fruit in anti-browning agent. Follow the directions on the guideline cards for anti-browning agents or those on the actual container. Inspections of fresh fruits and vegetables are based on USDA standards. Use common sense when inspecting fruits and vegetables. For additional information refer to Navy Food Service Handbook.

FROZEN FRUITS.—Frozen fruits are convenient and available year-round. Little preparation is needed, there is no waste and less storage space is required than for fresh fruit. Most frozen fruits are packed with sugar or syrup. Thaw them in the unopened container and use immediately to maintain quality.

The Navy procures frozen fruits such as berries (strawberries, boysenberries), cherries and peaches. Frozen fruits are closest to the fresh counterpart in flavor and appearance. They will be thawed by placing the unopened container in the chill space 24 hours before they are to be used. This allows the frozen fruit to thaw completely and more evenly throughout.

CANNED FRUITS.—Canned fruits require no refrigeration and are available all year. They may be packed in water, syrup, or natural juices. All canned fruits should be served chilled. Do not serve food from cans with abnormal odor, taste or appearance, or from containers showing abnormalities such as dented seams, bulging, swelling or leakage and rusting - particularly at the seams.

DRIED FRUITS.—Dried fruits, such as raisins, apricots, prunes and dates, can be used for pastry and pie fillings and as ingredients in cakes, cookies, breads, sweet dough and salads.

Wash dried fruits thoroughly before they are used. They may be soaked to reduce cooking time, but avoid a long soaking period because it produces a watery, tasteless fruit. Cook raisins and dates without soaking. If sugar is to be added, it should be at the end of the cooking period. If it is added at the beginning, it interferes with the absorption of water. Dried fruits must be stored under controlled conditions of temperature, humidity and air circulation.

VEGETABLES

Vegetables of all types are nutritional necessities in a well-balanced diet. In addition to the contribution of important minerals and vitamins, vegetables add color, flavor and interest to meals. All too frequently vegetables are rejected or left uneaten when they are poorly cooked; consequently, they are not pleasing in appearance or flavor. A vegetable can become unpopular simply from being overcooked, watery, or poorly seasoned. Furthermore, the food value may be lost or diminished by improper handling and cooking. Vegetables are bought by the Navy in the following forms: fresh, frozen, canned, dried and dehydrated.

FRESH VEGETABLES. — Most raw fresh vegetables have waste or portions that are not edible. When you peel, scrape, brush, trim, or cut these vegetables, it is important not to destroy or damage edible portions and especially not to lose the valuable nutritional elements that are usually con-

tained close to the outer skin or peel. Select vegetables about equal in size, or cut them into pieces of equal size. Then all the pieces will be cooked uniformly in the same length of time. Plan for cooking vegetables with the peel on whenever possible, especially potatoes. If potatoes must be peeled, do it very carefully so as to make thin peelings. Much of the food value in a potato lies close to the skin.

Washing.—Raw fruits and vegetables shall be thoroughly washed in water to remove soil and other contaminants before being cut, combined with other ingredients, cooked, served, or offered for human consumption in ready-to eat form.

Vegetables of uncertain origin and those purchased in foreign countries and/or suspected of being contaminated with pathogenic organisms must be chemically disinfected by immersion for at least 15 minutes in a 100 ppm Free Available Chlorine (FAC) solution or 30 minutes in a 50 ppm FAC solution (or other approved solution) and thoroughly rinsed with potable water before being cooked or served. A 100 ppm chlorine solution can be made by adding 3 tablespoons of 5% sodium hypochlorite to 5 gallons of water; use 1 ½ tablespoons for a 50 ppm solution. Head items such as lettuce, cabbage, celery, etc., must be broken apart before disinfection.

Retaining or Restoring Freshness. — After vegetables have been washed clean, keep them in a cool storage place until they are to be prepared.

Wilted vegetables can be refreshed by placing them in ice-cold water to which one-half cup of vinegar per gallon of water has been added. When they are freshened, the vegetables should be covered with a clean, damp cloth and placed in a cool storage room until you are ready to use them.

Keep the time between preparation and cooking as short as possible. Valuable vitamins are lost when vegetables are soaked too long or are allowed to remain at warm temperatures for several hours.

FROZEN VEGETABLES.—Frozen vegetables have the appearance and very nearly the flavor of fresh vegetables. Like the dehydrated vegetables discussed previously, they are easy to prepare; the precooking tasks have been done. Frozen vegetables have been cleaned and trimmed and are ready to use.

CANNED VEGETABLES.—Vegetables that are canned have been cooked in the container and need only to be brought to just below the boiling temperature just before they are served. Never boil a canned vegetable; always avoid overheating or overcooking. The liquid from tamed vegetables should be saved and used in soups, sauces, or gravies. Follow the AFRS guidelines for heating canned vegetables.

DRIED VEGETABLES.—A variety of dried vegetables are used in Navy messes. Dried beans and peas are used in soups and entrées (supplemented with meats such as ham, bacon, or ground beef as in chili con carne). Dried garlic is used as seasoning. Dried onions are used extensively in salads and cooking.

DEHYDRATED VEGETABLES.—Dehydrated vegetables are now widely used and popular in Navy messes. Their small weight and volume make them convenient to store. They are easy to prepare. All the precooking tasks associated with raw vegetables have been done for you. They are peeled, diced, sliced, or chopped and ready to use. They eliminate waste and ensure portion control.

Precooked potato granules, sliced raw potatoes, raw cabbage, chopped onions and green peppers are some of the dehydrated vegetables used by the Navy. They are reconstituted by adding a measured quantity of the vegetable to a measured volume of water. The temperature of the water will

vary (lukewarm or cool) with the specific dehydrated vegetable being reconstituted as will the length of time required for the reconstituting process (15 to 30 minutes). Recipes in the Q (vegetable) section of the AFRS give more detailed instructions for reconstituting dehydrated vegetables.

COOKING METHODS

Vegetables may be baked or sautéed, simmered or steamed; they may be served with butter or covered with an appropriate sauce; or, after they are simmered or steamed, they may be creamed, mashed, or sautéed.

The basic methods of cooking vegetables are simmering, steaming and baking.

SIMMERING.—Vegetables are simmered in water with seasonings in steam-jacketed kettles or covered stockpots. Vegetables will lose their fresh appearance, flavor and nutritive value if they are overcooked.

STEAMING.—Steaming is an excellent method of cooking most fresh vegetables. It is faster than other methods and helps to preserve the fresh appearance and nutritive value of the vegetables. Follow the manufacturer's directions for cooking time and methods for each kind of vegetable. Guidelines for steam cooking are given in the AFRS.

BAKING.—Cook the vegetables in dry heat in an oven with the addition of little or no water. Dry baking is usually limited to potatoes and squash.

OVEN FRYING.—Some vegetables may be parboiled and then placed in a well-greased roasting pan in the oven to complete cooking. Hash browned and home fried potatoes may be oven fried.

DEEP FAT FRYING AND PANFRYING.—Potatoes, onions and other vegetables such as eggplant, cauliflower and okra may be French fried. Vegetables that are deep fried and pan-fried should be tender and cut into uniform size pieces. Pan-fried vegetables are cooked in a small amount of fat on top of the range. Sautéing is another term for pan-frying.

STIR-FRYING.—Carrots, celery, cabbage, sweet peppers, mushrooms, dried and green onions, broccoli and cauliflower may be stir-fried. Stir-frying is sautéing in hot salad oil or shortening in progressive steps. The cooked vegetables are crisp and crunchy in texture.

PROGRESSIVE VEGETABLE COOKERY.—To make sure a continuous supply of freshly cooked vegetables is available on the serving line, cooking periods must be staggered so that several small batches of vegetables will be cooked one after another. This also helps control waste because a new batch will be started only if it is needed.

Short cooking time is best. Cook only a small quantity of vegetables at a time. Vegetables must be cooked in the shortest time possible and in a small amount of water. *Never use baking soda to preserve* color. Overcooking, cooking in too much water, or using soda in the water destroys the nutrients you are trying to conserve.

To determine if the vegetable is done, press pieces of the vegetable between the thumb and forefinger and taste the sample. If it is done, the vegetable should be tender but have a definite bite quality.

SALADS

Salads have an important place on the menu. They contribute something both nutritious and refreshing to the lunch or dinner meal. Fruit salads and vegetable salads are the most popular. They also introduce valuable vitamins, necessary minerals and color into the meal.

Salads can be made quickly and easily if a few simple rules are followed. This is equally true for individual salads that often seem more appetizing and receive greater acceptance than a large dish of salad.

After a crisp, refreshing and attractive salad is produced, it should be served so that none of this attractiveness is lost. Select a cool place for assembling and serving the salad. Bring individual salads from the refrigerator, a few at a time, so that they will remain crisp.

SALAD INGREDIENTS

Salads consisting of fruits, vegetables, meat, or a combination of these ingredients provide a good menu for diet-conscious people or people who are trying to lose weight.

Nearly all salads contain some fresh, crisp greens, at least as a garnish; beyond that, however, the range of ingredients is very wide. A salad may consist of greens tossed with dressing, or it may consist of a combination of vegetables or fruits (or both). There are also hearty salads that may be used as the main dish of the meal.

SALAD GREENS.—Select your salad greens carefully. You have a wide choice of greens that are suitable for a salad foundation—lettuce, endive, escarole, young spinach and cabbage (Fig 7-7.) These may also be used as one of the main ingredients of the salad itself. Parsley and the inner tender leaves of curly endive are good for a garnish.

Sort, trim, wash and crisp the greens before making the salad. Wash them carefully to free them of sand and earth particles. Drain them well. Hand cut the lettuce and cabbage into strips or pieces. Place the prepared greens in pans, cover them with wax paper or a damp cloth and refrigerate. They should be drained thoroughly and be free of excess water before they are placed in the serving line. They should be one of the very last parts of the meal to be prepared.

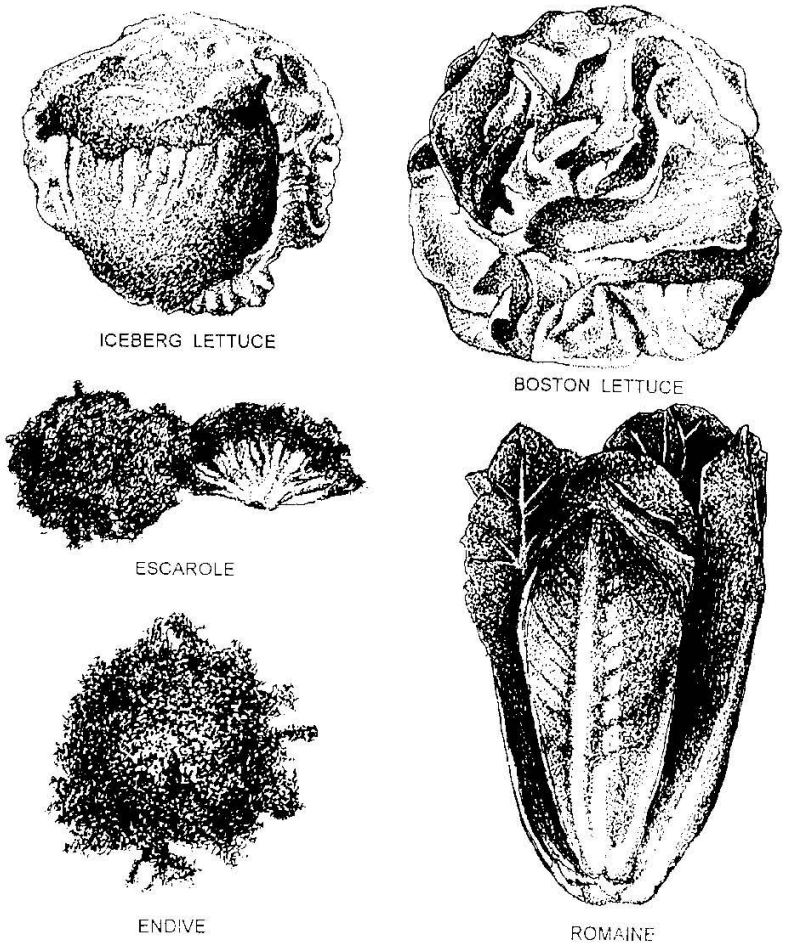


Figure 7-7, Salad greens.

SALAD VEGETABLES.—Fresh, canned, or dehydrated vegetables may be used for salads. Select the fresh vegetables with care. Wash them thoroughly. Trim and peel them, if necessary and cut them into uniform sizes. Cook those that need cooking. When canned vegetables are to be used in a salad, the liquid drained from the cans should be reserved and used in soups, sauces, or gravies. The canned vegetables may be marinated in French dressing before being used in a salad. Dehydrated cabbage, green peppers, onions and string beans may be reconstituted and used in salads.

Salads used for the main course for lunch or dinner should be substantial and provide the food values comparable to any other main dish.

SALAD FRUITS.—Fruits add variety as well as color and texture to the salad bar. Fresh, frozen and canned fruits maybe used.

SALAD DRESSINGS

The salad dressing is as important as the salad itself. Each type of dressing can take on a new flavor by the addition of different seasonings and herbs.

BASIC DRESSINGS.—The two basic kinds of salad dressings are French dressing and cooked salad dressing. Commercial salad dressing is similar to mayonnaise except that a cooked

starch paste is added and less oil is used than in mayonnaise. French dressing is basically oil and vinegar to which many kinds of seasonings may be added. Commercial French dressing usually contains tomato paste or puree as well as emulsifiers that keep the oil and vinegar from separating.

SALAD DRESSING INGREDIENTS.—A variety of seasonings can be added to the oil and acid basic ingredients (usually lemon juice or vinegar) of a salad dressing to produce different kinds of dressings that complement a specific type of salad.

Salad Oil.—Salad oil is an important ingredient in salad dressings. It must be fresh. Salad oil can become rancid and have an unpleasant taste if it is exposed to light, air and heat. Oil will mix temporarily with liquid after being shaken or beaten, but if the mixture is allowed to stand, it will separate again into layers.

Acid.—Fruit juices or vinegar are the acid ingredients in salad dressings. Pineapple or lemon juice can be used instead of vinegar in some recipes.

Seasonings.—Salt, pepper and sugar are the usual seasonings in salad dressings. Other seasoning such as mustard, ground red pepper and herbs add color and flavor.

SALAD DRESSING PREPARATION.—The basic rule in making salad dressings is to make them in advance so that the seasoning will be well blended. Galley-prepared mayonnaise tends to separate if it is not properly made. Some important things to remember are the following:

- Have ingredients at room temperature before mixing
- Combine ingredients exactly as directed in the AFRS
- Make sure the oil is incorporated each time it is added before adding more oil
- Use a bowl that is deep enough to allow the mixture to be well beaten.

As a rule, salad dressing should be added to a fruit or raw vegetable salad not more than a few minutes before you are ready to serve the salad. If you are preparing salads to be set out on the salad bar, place the various types of salad dressings in separate containers so that each patron may have a choice. Remember to use small-sized containers for the dressings. Any salad dressing that is left over after the meal has been served should be discarded.

RELISHES

Relishes may be used in place of, or with, a salad. The AFRS contains guidelines for relish preparation. Raw carrots sliced lengthwise, celery, radishes, cauliflower flowerets, green pepper rings, olives and pickles make excellent relishes and increase the attractiveness of a meal. All raw vegetables, except leafy varieties, should be refrigerated in icy cold water for an hour or more. This should be done before they are served. This process makes the vegetables crisp and tender.

HORS D'OEUVRES

Hors d'oeuvres are appetizers that are nippy, high-flavored mixtures of various foods designed to be eaten from the fingers or from toothpicks. Preparation and service of *hors d'oeuvres* are customarily associated with small messes.

When hors d'oeuvres are served, they are normally served before formal or informal meals. Hors d'oeuvres are also served at elaborate functions where, as a rule, a meal is not served

Generally, there are two types of hors d'oeuvres: cold and hot. Some examples of cold hors d'oeuvres are ham rolls, fish balls, deviled eggs or shrimp, cheese carrots, or stuffed celery. Hot hors d'oeuvres are usually broiled, baked, or fried in deep fat and served fresh from the broiler, oven, fryer, or a chafing dish.

Dips and spreads are sometimes offered with hors d'oeuvres. They can accompany them or be used to complement various crackers or vegetables. Most of the different dips and spreads resemble salad dressings in their composition. Therefore, the same precautions should be followed during preparation, serving and storing.

SANDWICHES

Sandwiches make satisfying meals and are especially convenient to serve in case of an emergency. This is true under battle feeding conditions when personnel are isolated from regular messing areas, or under similar circumstances. When sandwiches are prepared, remember that they will probably be the primary item of that particular meal and should be substantial. Whenever possible, sandwiches should be served with a beverage, fruit or fruit juice and raw vegetables that can be eaten from the hand. There is no limit to the interesting and tasty food combinations that can be used for filling sandwiches. Many good recipes are listed in the AFRS.

SANDWICH INGREDIENTS

All sandwiches will have a bread of some sort. In addition to the bread, a sandwich will include one or more of the following: a sandwich filling such as egg salad; sliced cold meats; or a spread such as deviled ham; and individual condiments such as catsup.

BREADS AND ROLLS.—Sandwiches may be made with any kind of bread. Varying the bread helps to avoid monotony. The kind of bread used should be appropriate for the type and flavor of the filling to be used. There is no set rule for such combinations as the choice is determined by individual taste. Sandwiches may be served hot or cold.

Breads that are used most often include white, rye, pumpernickel and whole wheat as well as various types of rolls and buns.

When you are making sandwiches, use slightly firm bread. Day-old bread is preferable because it is more easily handled than freshly baked bread. Bread requires special handling to prevent it from becoming stale. To prevent moisture loss or absorption, observe the tips listed next on wrapping and storing bread and rolls:

- Store bread in a moisture-proof wrapper
- Store bread at moderate temperatures (75°F to 85°F) in a clean, dry space away from food
- Maintain a clean, dry storage place for the bread and rolls. Separate from other stores to prevent absorption of odors and flavors
- Bread should not be stored in chill spaces because it will stale rapidly. However, freshly baked and cooled bread and rolls may be wrapped in moisture-proof material and frozen for later use.

SANDWICH FILLINGS.—The choice of fillings should be determined either by when the corresponding sandwiches with be eaten or by how the filling is used. For example, they may be served

in sandwich meals (box lunches), as appetizers, or as a food item on a regular menu or fast-food serving line.

Some of the types of fillings are salad mixtures such as tuna, egg and ham. Such mixtures as ground meat, chopped egg, fish or shellfish, or any filling containing mayonnaise or salad dressing should never be made for sandwich meals. These foods are likely to be contaminated with bacteria that will grow rapidly at room temperature and can cause illness.

Cold cuts and peanut butter and jelly are suitable fillings for sandwiches to be served either in or away (such as box meals) from the GM.

Sliced Cold Meat. Cold sliced turkey, chicken, roast beef, bologna, salami, ham, or cheese are considered cold cuts.

When used as fillings, these meats should be cooked according to AFRS recipes. After being cooked, the meat should be covered and refrigerated without slicing until just before the sandwiches are to be prepared. If the meat is sliced ahead of time, it will dry out even if it is covered and refrigerated. When you are ready to prepare sandwiches, slice the meat thinly and remove gristle and excess fat. Thinly sliced sandwich meats are more tender and juicy than thickly sliced meats. Slice only enough for immediate use.

Spreads and Individual Condiments. To avoid risk of contaminations and to allow the user an individual choice, such spreads as salad dressing, mayonnaise, mustard, or catsup should be packed separately. Always follow the AFRS directions for making sandwiches.

SANDWICH PRODUCTION

To make many sandwiches quickly, follow the steps shown in Figure 7-8. Have all sandwich material ready, allow ample work space. Sanitary procedures and precautions must be strictly followed in the preparation and serving of sandwiches. Some of these procedures and precautions are listed next.

- Fillings for cold sandwiches are highly susceptible to bacterial contamination and every precaution should be taken when preparing and serving sandwiches. *Never allow sandwiches to stand at room temperature for more than 4 cumulative hours*. This 4-hour period includes the time spent chopping or dicing food after it has been cooked. If the sandwiches will not be consumed immediately, they must be held at temperatures below 41°F
- When you are refrigerating fillings, they should be placed in shallow pans so that the contents will be quickly and completely chilled. Whenever possible, sandwiches should be made to order
- Sandwiches intended to be eaten hot, such as a Reuben or hot roast beef, must be prepared upon customer request or immediate before serving in a feeding operation such as a GM
- Never place or prepare sandwiches on a cutting board or surface that has been used to prepare raw chicken or turkey
- Keep sandwich counter and equipment thoroughly clean and sanitized
- Clean chill boxes and accessories frequently to avoid mold and undesirable odors
- Use sanitized utensils instead of hands whenever possible

- Requisition and prepare food in the quantities needed so that there will be a rapid turnover and as few leftovers as possible
- Keep the time between preparation and consumption to a minimum
- Pack or serve lettuce, tomatoes and spreads used in bag or box lunches separately
- Keep the filled sandwiches at a temperature of 41°F or lower if possible
- Avoid leftovers. Do not use any foods for sandwich fillings, that have been held at 41°F or over, for more than 4 hours. Bacteria grow more rapidly in some foods than in others
- Immediately following the preparation, wrap each sandwich separately and refrigerate. Never use a dampened cloth or towel to keep bread or sandwiches moist
- Avoid stacking a large number of sandwiches or placing sandwiches in cardboard boxes. This method actually insulates the food and prevents it from cooling as fast as it should to the desired storage temperature
- When sandwich meals are prepared for box lunches, the boxes should be marked in the following manner to make sure customers know the safe time limit within which the meals should be eaten:

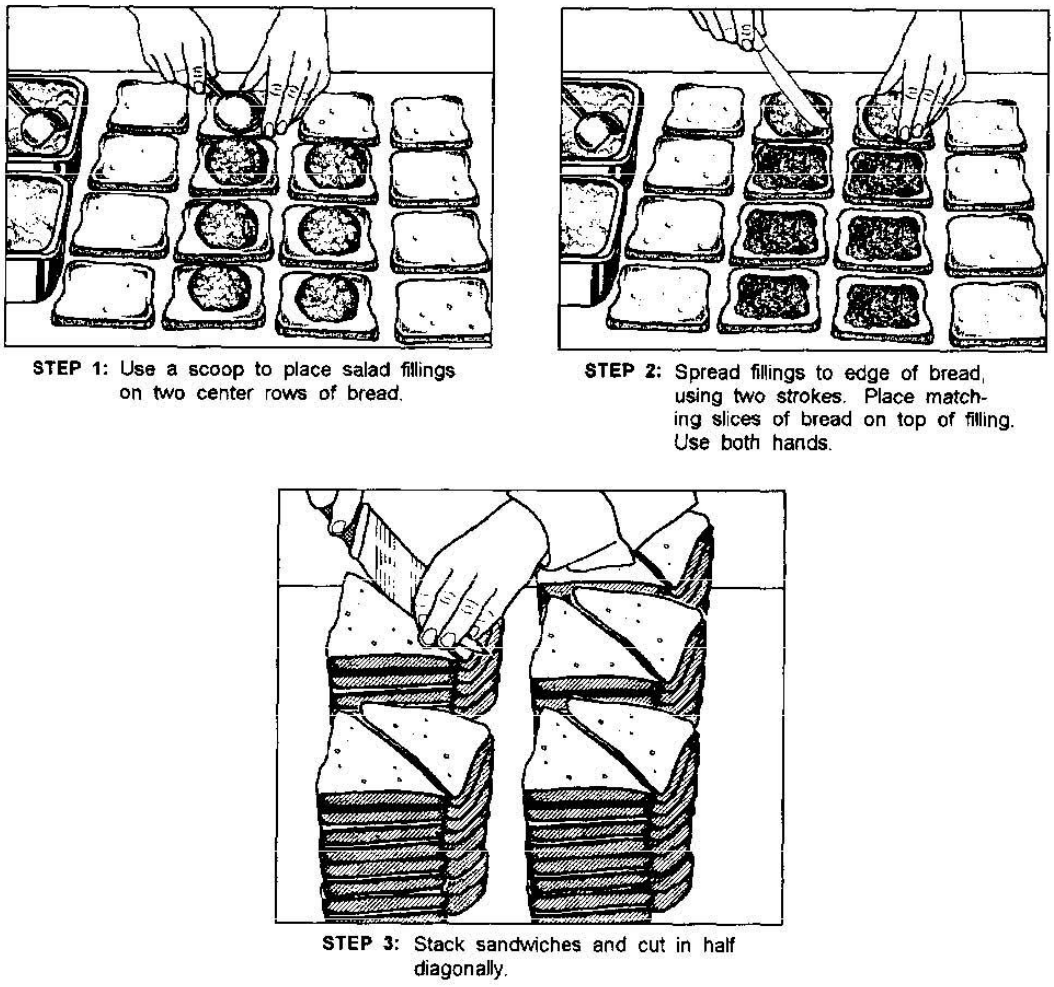
  Date and time issued: _____

  Keep under refrigeration or eat by:

  (within 4 hours after time of issue)

  Prepared by: _____

  (initials/time/date)



STEP 1: Use a scoop to place salad fillings on two center rows of bread.

STEP 2: Spread fillings to edge of bread, using two strokes. Place matching slices of bread on top of filling. Use both hands.

STEP 3: Stack sandwiches and cut in half diagonally.

Figure 7-8.—Steps in producing sandwiches with salad fillings.

BOX LUNCH ASSEMBLY

For efficient assembly of box lunches, devise a checklist of all items to be included and post where it is plainly visible to those responsible for filling the orders. Be sure to list items to be served with the meals, such as salt and pepper, cream substitute and sugar and other appropriate condiments and spreads.

Because choices of food items for box meals are limited, menu planners may find it difficult to include a wide variety of food. The AFRS has many recipes for sandwiches, breads and rolls, desserts and relishes that will help give variety to menus.

Selections from the following food items are suggested for inclusion in breakfast, lunch, or dinner box or bag meals:

- Fruit
- Juice

- Cereal, ready-to-eat, instant or cold
- Breads, pastries, rolls, butter, or jam
- Eggs (especially hard-boiled)
- Soup
- Cheese
- Meat
- Relishes (raw vegetables, pickles, or olives)
- Condiments and salad dressings
- Accompaniments (cranberry sauce or applesauce)
- Desserts (pudding, yogurt, or bakery items)
- Milk
- Beverages (cold or hot)
- Raisins, nuts, or granola-type bars.

SOUPS

Soup is a tasty, popular food. It is nutritious, wholesome and stimulates the appetite. A different type of soup will be served for the second meal when two soups are offered on the day's menu. Soup ingredients should differ from other menu selections of the meal. Example: avoid using entrees containing tomato sauce with tomato soup, baked beans with bean soup. The type of soup must be specified on the menu. Terms such as soup of the day will not be used. A key rule in serving soup is that it be served as hot as possible.

GALLEY-PREPARED SOUPS.—There are four basic kinds of soup:

- Light soups are made from clear, un-thickened stock
- Heavy soups are made from stock vegetables, rice, or pasta such as noodles, macaroni and spaghetti
- Cream soups are made with milk, stock, or vegetables and lightly thickened. They should be heated to serving temperature, but never allowed to boil
- Chowders are made with fish, shellfish, or vegetables.

There are three basic soup ingredients: stock vegetables and thickeners. These basic ingredients are discussed next.

Stock. Stock is made by cooking meat bones, poultry bones and trimmings, vegetables and seasonings in water. Alternately, it is made by using dehydrated soup and gravy bases, which saves time, labor and space. These various bases contain salt; therefore, the amount of salt added should be determined by careful tasting during the cooking process.

The standard stock items, instant beef, chicken, or ham soup and gravy base, may be reconstituted for use in any soup recipe. These powdered bases are seasoned and when they are reconstituted in boiling water they have the characteristic flavor of beef, ham, or chicken broth. The proportions that should be used to reconstitute these bases are included in the A (miscellaneous) section of the AFRS.

Vegetables.—The vegetables most commonly used for soups are celery, carrots, peas, beans, onions, green peppers and tomatoes. Vegetables are cut into small cubes, or into match-like strips that are called julienne. Vegetables used in soups should be cooked according to the instructions given in the AFRS for soup.

Thickeners. Soups are thickened by adding a roux or a paste. A roux is a mixture of fat and flour. A cold, light roux is usually added to soups that are to be thickened. In onion soup, for example, the cold roux is stirred into the hot soup stock and the soup is cooked until no taste of raw starch remains. Roux may be prepared ahead of time and refrigerated. A roux maybe prepared by two methods: the cold roux method or the warm roux method. Cold roux is prepared by combining flour with liquid fat, then stirring until a smooth paste is formed. In the warm roux method the fat is first melted over low heat and then the flour is added.

A paste is prepared by whipping flour or cornstarch into a cold liquid (usually water) and then adding it to hot liquid that is cooked until it thickens. In the final step of preparing bean soup, for example, a flour and water paste is stirred into the soup that is then cooked for 10 minutes.

GALLEY PREPARED SOUPS.—The individual recipe in the soup section of the AFRS specifies the types and amounts of seasonings that should be used. When meat or chicken stock is made, the flavor from the ingredients used is very concentrated; therefore, it is essential to use accurate amounts of the ingredients. Just before the soup is to be served, check it again for proper seasoning. It is better to add more seasoning to the stock or soup a short time before it is served, rather than have a soup so highly seasoned it is unpalatable. If the taste check indicates that the soup is too salty, add sliced raw potatoes to the soup, bring soup to a simmer for a few minutes, then remove the potatoes.

COMMERCIALLY PREPARED SOUPS.— Dehydrated, instant, condensed and ready-to-serve soups are not only easy to prepare but they are also time-and space-savers.

Dehydrated soups such as chicken noodle, green pea and tomato vegetable are prepared by merely adding the specified amount of boiling water. Then the mixture is covered and allowed to simmer for the length of time specified on the container. The finished product is similar in appearance and flavor to the same type of soup made with raw food items.

SAUCES

Sauces add to the appearance and flavor of food, but they should never be overpowering. Sauces should be handled carefully to avoid contamination and food-borne illness. Store in a chill space and never hold them longer than 4 cumulative hours at temperatures between 41°F and 135°F.

CREAM OR WHITE SAUCE.—Cream or white sauces are made with butter or margarine, flour and milk and have many variations. These sauces must be cooked over low heat. They require constant stirring to avoid scorching. The sauce is cooked until it coats the back of the spoon.

Thin and medium white sauces are used to bind ingredients together in scalloped meat, fish, egg and vegetable dishes. Medium white sauce may also be served over food.

BUTTER SAUCES.— A white sauce with a high percentage of butter and little or no seasoning other than salt is considered a butter sauce. This sauce is used principally with green vegetables, such as asparagus and broccoli and with fish and shellfish.

OTHER SAUCES.—Sauces served with meat, chicken, seafood, omelets and spaghetti are prepared according to recipes in the AFRS. Also, commercially prepared sauce mixes are available. These include basic tomato, sweet and sour, cheese, barbecue, taco and enchilada sauces. Directions for use are found on the containers. Some examples of sauces and their uses are as follows:

Sweet thickened:

Raisin . . . . . Baked ham

Pineapple . . . . . Baked ham

Unsweetened, thickened:

Hot mustard . . . . . Ham

Tomato . . . . . .Veal steaks

Stuffed green peppers

Uncooked, unthickened:

Tartar. . . . . Seafood

Seafood cocktail . . . . . Seafood

Cooked, unthickened:

Barbecue . . . . . Beef, pork

Spaghetti . . . . . Spaghetti

GRAVIES

Any gravy served should go with the food it is intended to compliment. The O section of the AFRS contains many recipes to be served with meat and poultry. Thickened gravies are made by adding flour to the pan drippings left after roasting and browning meats. This flour mixture forms a roux that is then added to stock. The gravy is stirred and simmered until the mixture thickens. There are numerous types of gravies. A good gravy should be as smooth as cream.

CREAM GRAVY.—Cream gravies are made by adding milk to the roux instead of stock or water. Cream gravy is usually served with chicken or ham.

NATURAL PAN GRAVY.—Natural pan gravy (au jus) is un-thicken gravy that is usually served with roast beef. Water or stock is added to the meat drippings and the gravy is allowed to simmer until hot.

BROWN GRAVY.—Brown gravy is prepared by cooking the flour and fat mixture (roux) until it is brown. Brown gravy is the basic gravy used to make giblet, mushroom, onion and vegetable gravies. Brown gravy mix is a dry mix that requires only the addition of hot water.

Gravy Preparation

Thickeners, liquids, fats and seasonings are combined to form gravies. Certain tips will assist you in preparing and serving gravies.

THICKENERS.—To make smooth gravy, a roux must be used for thickening. Flour or other starch will form lumps if added directly to hot liquid. To make brown gravy, the flour and fat mixture (roux) is cooked until it is a rich, brown color. The roux is added to the hot stock and the mixture is simmered until it is thickened. To make cream gravy, the roux is cooked, but not browned. The roux is added to milk or light stock and cooked until thickened and no taste of the starch remains.

LIQUIDS.—If a large amount of gravy is prepared, there should be enough stock to ensure a good flavored gravy. Tomato juice or the liquid saved from mild-flavored cooked or canned vegetables (beans, peas, carrots) can be substituted for part of the water. Reconstituted soup and gravy base can be substituted for all or part of the stock. Since salt is an ingredient in these bases, no additional salt is added until cooking is completed. The gravy should then be tasted and salt added only if necessary.

FATS.—Fat from the pan drippings provides flavor. If there is not enough fat remaining in the pan from the meat to make a sufficient quantity of gravy, melted shortening may be added.

SEASONINGS.—Seasoning the gravy is important. Avoid over-seasoning. Add salt and pepper in moderate amounts and taste the gravy during preparation to see if more is needed.

PREPARATION AND SERVICE TIPS.—If lumps should occur when you are making gravy, strain the gravy or whip vigorously with a wire whip. If gravy is not to be served immediately, cover the pan and keep it hot; or it may be refrigerated and reheated when ready to use. Gravy should be handled carefully to avoid contamination and food-borne illness. Store it in a chill space and never hold gravy longer than 4 cumulative hours at temperatures between 41°F and 135°F.

DRESSINGS

Dressings are usually served as the starch addition of a lunch or dinner meal when the entreé consists of a poultry product such as turkey.

The terms *dressing* and *stuffing* are often used interchangeably, but they both actually refer to dressing. If the dressing is cooked inside the poultry, it is referred to as stuffing.

Excellent dressings can be prepared that are not cooked inside the birds. Pan-baked dressing requires more moisture and is less firm than stuffing, but is easier to prepare and easier to serve. Good dressing is light and moist, not heavy and pasty.

Poultry stuffed with dressing is not recommended for large-scale food operations such as GMs because it increases cooking time, imposes a larger workload on foodservice personnel and it does not improve or enhance the flavor of the meat. Most importantly, stuffing poultry is a sanitation risk and increases the possibility of food-borne illness. If Poultry is to be stuffed, the internal temperature of the stuffing must reach 165°F

The AFRS includes the basic bread dressing recipe and its many variations that may be served with either chicken or turkey.

CEREALS, PASTA and RICE

Cereals, pasta and rice are all grain products that are used as the starch portion of a meal.

CEREALS

Cereals are foods made from grains of wheat, oats, corn, rice, rye and barley. Cereals are often referred to as breakfast foods, but are not limited to the breakfast meal. Cereals can be used in many types of recipes. The types include instant, quick-cooking and cold ready-to-eat cereals.

Instant cereals do not require further cooking. They are simply mixed with boiling water before serving.

Quick-cooking cereals require a shorter cooking time than regular cereals. To prevent quick-cooking cereals from forming lumps, they should be stirred slowly into rapidly boiling water. Quick-cooking farina is mixed with cold water and then added to boiling water. These cereals should be stirred constantly until they boil. After they begin to boil, reduce to a simmer and stir them occasionally. Over stirring and overcooking will cause cereal to be sticky and gummy.

Ready-to-eat cold cereals require no cooking and are served with cold milk and sugar. No added sugar is needed for the coated or frosted cereals. For variety, sliced peaches, strawberries, prunes, or bananas maybe added.

PASTAS

Pastas (macaroni, spaghetti, vermicelli and noodles) are produced from semolina durum wheat flour, farina, or hard wheat flour (other than durum wheat flour) and water. Egg noodles also contain eggs. The mixtures are rolled, shaped and dried in various forms. The only difference between vermicelli and spaghetti is that the individual strands of vermicelli are finer and require less cooking. They may be used interchangeably in recipes specifying spaghetti or vermicelli.

Pastas should be added to vigorously boiling, salted water and stirred so that they will not stick together or to the bottom of the kettle. A small amount of salad oil is added to the water to help to prevent sticking. Pastas should be drained as soon as they have finished cooking. If pastas are overcooked, they become soft and gummy.

RICE and BARLEY

The rice products used in the military feeding programs are parboiled, long-grain and medium-grain rice. They need not be washed before cooking. Cooked long-grain rice should appear light textured and the individual grains should stand apart. Medium-grain rice, when cooked, will clump together. This type of rice is preferred in Oriental dishes. Directions for proper cooking by steaming, simmering and baking are contained in the AFRS. Rice may be served plain, as a potato substitute, combined with other ingredients in a main dish, added to salads, or topped with highly seasoned sauce. For variety, combine rice with herbs, spices, chopped onions, or nuts. Rice pudding can be served for dessert.

Barley is a grain used principally as a soup ingredient.

ADVANCED FOOD

ADVANCED FOODS. Advanced food is considered to be pre-prepared food which eliminates traditional "cook from scratch" preparation procedures. These foods are pre-cooked/cooked, pre-pared/pre-assembled and pre-breaded. Items that are fresh, chilled, seasoned, frozen, sliced, diced and shredded are included in this category.

Other items are Ready-to-Serve (RTS) or Ready-to-Eat (RTE) items which may require re-heating, cooking or served directly from the original container.

ADVANCED FOOD DESCRIPTIONS. The following products are considered Advanced Food:

- **Pre-Cooked/Cooked**. Preparation requires only re-heating vice complete cooking. These items can be served alone or as a component of another recipe. Examples are pre-cooked bacon, oven roast, chicken and corned beef
- **Prepared/Pre-Assembled**. Items containing 2 or more ingredients that have been assembled to create a complete recipe. Preparation requires heat and serve or minimal preparation. Items may be purchased frozen, chilled, canned or other dry packaging such as plastic, foil or cardboard and may include entrées, side dishes or pie fillings and desserts. e.g., Lasagna, Pizza, Salisbury Steak, Beef Stew, Macaroni and Cheese, Baked Beans, Refried Beans, Chili, Beef w/BBQ sauce, Ravioli, Lumpia, Egg Rolls, Assorted Hors d'ouvres, Au gratin Potatoes, frozen or shelf stable dough products, cookie dough, frozen whole eggs/egg whites and condensed or frozen soups, stuffing mixes, rice mixes and flavored potato mixes
- **Pre-Breaded**. Items raw or pre-cooked, which have bread coating applied already. Preparation requires only heating and serving. These items are typically purchased in the frozen state. Examples of breaded products are shrimp, fish portions, veal/chicken/pork patties, onion rings and vegetables
- **Pre-Cut/Sliced/Diced/Chopped/Cubed/Shredded/Grated**. Items which have been pre-cut, sliced, diced, chopped, cubed, shredded, or grated and are purchased fresh, frozen or chilled. Examples are sliced/diced/chopped cheeses, pre-cut raw vegetables and meats such as fajita strips and diced meat (e.g. chicken, turkey)
- **Ready-to-Serve (RTS)/Ready-to-Eat (RTE)**. Items that are fully prepared as purchased. They can be removed from the package and served as a standalone item without any further preparation other than portioning. Items may be purchased frozen, chilled, canned or in dry packaging such as plastic, foil or cardboard. Examples: Pre-made shelf stable or frozen cookies, brownies, cakes, pies, canned/dry puddings, canned meat spreads, croutons, ready-made pie crusts, ready-made icing, salsa, pizza, cocktail, tartar and cheese sauces.

BEVERAGES

Beverages are an important part of Navy meals. The preparation of high-quality beverages requires the skill, technique and experience of an accomplished CS. The types of hot and cold beverages used in the GM include milk, coffee, tea, cocoa, fruit and vegetables juices, fruit-flavored drinks and soft drinks. Good quality drinking water also should be available.

MILK

Milk is one of the most important and most frequently used foods, as well as popular beverage. It is important to keep in mind that milk, served as a beverage or used in cooking, is a potentially hazardous food. To ensure safe, high-quality milk, follow these practices:

- Know the characteristics and recommended use of each type of milk
- Select the proper types of milk to meet your foodservice operation's requirements and storage capacities
- Handle milk according to safe, sanitary procedures.

For more information on milk, consult the NAVSUP P-486 and the *Manual of Naval Preventive Medicine*, P-5010.

COFFEE

The preparation of coffee demands as much detailed attention as does any other part of the meal. Tastes for coffee vary widely. Some people prefer a weak brew while others enjoy a strong one. The AFRS contains directions for brewing various strengths. Good coffee will smell fragrant and mellow. The color will be a deep brown but not black. The taste will not be rancid, oily, or bitter. The strength of the coffee depends on the proportion of water used in relation to coffee grounds. A milder brew results from using either more water or less coffee than normally. Bitterness results from brewing the coffee too long.

Several suggestions that will help you produce brewed coffee of consistent quality follow:

- Store roasted coffee in an airtight metal container because coffee loses its flavor and aroma rapidly when exposed to air. Also, it will also absorb odors that lower its taste quality
- Use older stocks first. Within 3 days after opening, vacuum coffee has lost much of its flavor
- Always measure both the coffee and the water
- Use fresh coffee at all times and keep the coffee covered while it is brewing
- Never allow coffee to remain in contact with boiling water as the flavor and aroma will boil off
- Remove the grounds as soon as the coffee is made. Seepage from the grounds will ruin the flavor of the best coffee
- Brewed coffee should not be held for more than 30 minutes for automatic coffee makers and 1 hour for urn coffee makers as it deteriorates in flavor and loses its aroma
- Most important of all, keep the coffee-making equipment absolutely clean. Wash the urn with clear, hot water immediately after you have used it and at the end of the day clean it with hot water and urn cleaner. Rinse thoroughly with clear water. Never use soap or soap powder.

TEA

Normally, two forms of tea are used; bulk tea and tea bags. Instant, powdered tea however, also has special uses in the military services.

The quality of brewed tea depends upon how fast the boiling water extracts flavor and color from the tea leaves; it is the tannin present in the leaves that gives the tea a bitter taste. Improper temperatures, brewing too long and holding tea too long for service will bring out the bitterness of the extracted tannin.

The proper quantities of both water and tea should be measured carefully. Never guess at the amounts,

HOT TEA.—You will not have any trouble making excellent tea if you follow a few simple rules:

- When loose tea (not enclosed in a cloth bag) is placed in the urn or kettle, the tea should be strained after it has steeped for 5 minutes
- Tea should be made just before serving
- Do not boil; this brings out the bitter taste
- Schedule preparation so that not more than 15 minutes will elapse between its preparation and service; hold prepared tea at 175°F to 185°F.

ICED TEA.—The following points should be observed when preparing tea to be served iced:

- A stronger brew is required for iced tea than for hot tea because of the diluting action of the ice
- A tea concentrate may be brewed and chilled, then diluted before serving
- Do not add cold water to the concentrate; this may produce cloudy tea. The concentrate should be poured into the cold water
- The tea may be presweetened by dissolving sugar in the hot concentrate before diluting it with cold water
- If desired, cut lemons into eighths to serve with tea.

OTHER DRINKS

The C (beverage) section of the AFRS contains many recipes for various fruit drinks and milk drinks that may be prepared and served with either lunch or dinner. When you prepare fruit drinks such as lemonade or Grape-ade, it is important to remember to make the drink early enough to allow time for thorough chilling in the refrigerator. If ice is used to chill the beverage, adjust the amount of water used.

PRESENTATION FACTORS

Foods that look good and complement each other always have an advantage over those that are less attractive, even though they may be equally well prepared and nutritious. Learn to choose and combine foods in such a way as to achieve variety and harmony, both in appearance and flavor. The following suggestions will help you:

- Vary the methods of preparation of the food served. Carrots, for example, can be served raw, buttered, French fried, seasoned with lemon juice, or combined with peas
- Consider the color of the food selected. Choose colors that look well together. Avoid too many foods of the same color at any one meal

- Avoid the use of unsuitable colors for food. Serve interesting combinations of flavors. Combine mild and strong flavors but do not kill a delicate flavor with an unsuitable flavor combination. Avoid using the same flavor twice in the same meal
- Combine different shapes such as diced potatoes, sliced meats and leafy vegetables
- Do not plan all soft, dry, or moist foods for any one meal. Vary the texture
- Review the cycle menu each time it is used. Generally, avoid having the same meal on the same day of every week.

HEALTHY NAVY STANDARDS

Menus will offer healthy options to include a Healthy Navy entrée, vegetable, starch and dessert. Healthy Navy standards are as follows:

- Entrée = 15 gm fat or less
- Side dish (starch and vegetable) = 5 gm fat or less
- Desserts = 5 gm fat or less

NSCM MENU CHANGES. Food Service Officer's authorized changes and feedback for the Navy Standard Core Menu.

The FSO is authorized to make changes to this menu when, due to unusual or unforeseen circumstances, it may be necessary to provide substitutions for food items not in stock or to permit timely use of perishable foods."

The FSO is authorized to shift a limited number of menu line items to accommodate crew acceptability. This may include moving pizza or burger meals from one day to another based on crews preference and schedule. The above is authorized by NAVSUP, when menu shifts are accomplished within the menu cycle and is limited to no more than 3 shifts within the menu cycle.

EXCEPTIONS. When replacing a menu day or meal period with an authorized holiday, birthday or special menu, there is no obligation to make up the meal period or day if swapping a holiday or special meal. Holiday or birthday meal replacements are authorized one time per cycle unless two holidays fall within the cycle.

FEEDBACK. Suggestions regarding additional items for consideration to the NSCM to support the special meals can be forwarded to the TYCOMs for possible inclusion in future versions of the NSCM. Acceptability, functionality and product availability feedback will be provided to a NFMT, NAVSUP Code 51 representative and your TYCOM.

SUMMARY

In this chapter we discussed what the recipe card consists of, different types of recipe conversions, the different types of cooking techniques, preparation of fruits and vegetables, different forms of eggs and there safe holding temperatures, a better understanding of sandwich production, salad preparation, the different kinds of soups and beverage service. As a CS you are a vital importance to your organization; people must eat to perform their assigned jobs. The end result of your work is for the food to be enjoyed by the patrons of your mess. To achieve this you must continually strive for perfection in providing palatable, wholesome and attractive food.

CHAPTER 8

BREADS AND DESSERTS

***LEARNING OBJECTIVES**: Upon completion of this chapter, you should be able to do the following:*

— Identify different cooking and baking terms.

— Discuss the functions of food ingredients.

— Describe the bread make up process.

— Describe the difference between quick bread and yeast bread.

— Identify pie ingredients and there affect on the fine product.

— Describe the pie make up process.

INTRODUCTION

This chapter discusses basic baking terminology, ingredients and the procedures used to produce breads and desserts. To bake a satisfactory product, you must have a thorough knowledge of these terms, ingredients and baking procedures.

BREADS

The term *bread* has been used for centuries to describe a mixture of flour, sugar, shortening, salt and liquid. This mixture is made into dough and then yeast is added to the mixture to make the dough rise.

Two kinds of bread are used in the General Mess (GM). One kind includes yeast breads such as yeast-raised breads and rolls, sweet-dough rolls of various kinds, coffee cakes, doughnuts, pizza and quick breads. The other kind includes products leavened by chemical leavening agents such as baking powder. Some of these products are biscuits, muffins, pancakes, cake doughnuts, quick coffee cake and corn bread.

Bread is the most important food produced by the baker. It is prepared in greater quantities than any other baked product. High quality and excellent taste should be maintained regardless of the amount of bread baked.

YEAST-RAISED BREADS

The production of yeast-raised products, especially bread and sweet dough, is considerably more involved than the production of other bakery products. If the ingredients are of good quality, used in specific amounts and are properly mixed, using proper temperatures, the dough will yield good quality products.

Ingredients

The baker must understand the functions of each basic baking and bread making ingredient used in bakery products. He or she should then use the ingredients *properly* (manner of mixing and amount used). The functions of these ingredients are explained next.

Flour—Flour is a mixture of starch, protein and other materials. The kinds of flour used are described as follows:

- General-purpose flour is a mixture of hard and soft wheat flours. It is used to make cakes, cookies, quick breads, pastries and pies. It does not have enough gluten strength to make satisfactory yeast bread and rolls.
- Bread flour is a blend of hard wheat flours. It contains more protein than general-purpose flour and has a slight granular texture. Good quality bread and other yeast-raised products can be made only with bread flour.
- Wheat base is prepared from the wheat germ, bran and other fragments of wheat kernels. It has a whole wheat flavor and may be combined with flour to produce whole wheat bread.

In addition to the protein, flour contains various food elements such as carbohydrates, water, minerals, vitamins, enzymes and fat. The amount of these elements contained in the flour varies with the type, grade and storage period of the flour.

Protein - The two principal proteins present in wheat flour (gliadin and glutenin), when combined with moisture, form gluten that gives structure to batters and doughs. Gluten also gives the dough expansion qualities.

Carbohydrates - Carbohydrates in flour are usually in the form of starch that absorbs water and helps give bulk to dough. Flour that is especially made for cakes and pastries is rich in carbohydrates.

Water - Wheat flour usually contains from 9 to 15 percent moisture. Flour absorbs or loses moisture in storage, depending on the atmospheric conditions.

Minerals - Minerals are contained in the bran coat and the germ of wheat and most of the minerals are lost when wheat is made into white flour. These minerals are returned to flours that are enriched.

Vitamins - To replace the food value lost in milling, vitamins and minerals such as thiamin, niacin, iron and riboflavin are frequently added to flour. Flour treated in this manner is known as enriched flour.

Enzymes - An enzyme is a very minute substance produced by a living plant. The mere presence of an enzyme brings about certain changes in the composition of a material. Diastase and protease are the most important enzymes found in flour. Diastase converts starch to sugar and the yeast acts upon the sugar to produce carbon dioxide and other fermentation products. Protease softens the gluten and, when this enzyme is lacking, the dough will not have the desired elasticity.

Fat - Wheat flour contains approximately 1.5-percent fat. The major portion of the fat of wheat grain is removed during the milling process. Although the fat content of flour is very low, this is what causes flour to become rancid if flour is stored for long periods under warm and humid conditions.

Water—In many bakery products, including bread, the amount of water used is second only to the amount of flour. Water contains minerals. The amount and kind of minerals contained in the water vary from one part of the country to another. These variations affect the properties of the dough and the finished bread.

Water is necessary to form gluten from the protein of flour, thereby giving the dough its elasticity and its gas retaining property. Gluten absorbs twice its own weight of water. The amount of water used determines the consistency and the temperature of the dough after it is mixed. Water dissolves the salt and the sugar, makes it possible for the enzymes to act and holds the yeast in suspension until it is added to the other ingredients and the fermentation begins.

Salt—Very little salt is used in making bread, but the amount used is essential, for it performs a very important function. Without salt, fermentation in dough is too rapid and the baked product becomes too coarse. With too much salt, the fermentation process is slowed and the bread becomes soggy. Salt strengthens gluten and helps it to expand, improves the color of baked products and enhances the flavor.

Sugar—During fermentation, part of the sugar is converted into a form that can be used as food for the yeast. Starches are converted into sugar that produces carbon dioxide gas and alcohol and that causes the dough to expand, making it softer and more flexible.

This sugar in the bread contributes to the color of the crust, the taste of the baked loaf, the toasting qualities of the bread, the texture, the moisture retaining qualities and the nutritional value. Sugar is also a tenderizer.

Shortening—Shortening is the animal or vegetable fat that is used in baking. There are two general types of shortening-solid and liquid. The solid-type shortening is recommended for use in bread dough because it can be more thoroughly distributed through the dough. The reason for this is that it will not saturate the flour it touches. Although the liquid-type shortening can be used effectively, the dough must be well formed before the oil is added. The liquid-type shortening is mainly used in recipes that call for melted shortening, such as some cake and bread recipes. Shortening compounds are composed of deodorized animal and vegetable fats mechanically blended to give a final product of acceptable elasticity and satisfactory baking quality.

General-Purpose Shortening. General-purpose shortening is a high-grade shortening that has excellent baking qualities. General-purpose shortening should not be substituted in recipes that specify bakery-type shortening.

Salad Oils—Salad oils are generally used in the preparation of salad dressing and in recipes that specify oil. Oil should not be substituted for general-purpose.

Butter—Butter is the fatty constituent of milk that is separated from the other milk constituents by churning. Butter is used most often as a spread, but it has many other uses in food preparation. When butter is substituted for other shortening, you should adjust your recipe. Butter contains salt, milk and moisture so the salt, milk and liquid in the recipe should be decreased accordingly. The fat content of butter is less than that of other shortening; therefore, more butter should be used in the recipe.

Milk—Nonfat dry milk contains all the food qualities of whole milk except fat. In bread production, nonfat dry milk style A should be used, as this milk is designed specifically for achieving volume, flavor and crust characteristics desirable in yeast breads. Dry milk can be added by mixing or sifting the milk and flour together, or it can be reconstituted with part of the water in the bread recipe and

added to the dough. In either event, it is important that there are no lumps of milk powder in the dough.

The amount of milk used in the dough can be as high as 6-percent nonfat dry milk based on the weight of the flour. The use of more than 6-percent dry milk in the bread dough is detrimental to fermentation. Milk improves the texture, flavor and keeping quality of bread.

Eggs—Eggs are not used in making white bread but are used in making sweet dough cakes and cookies. In baked products, eggs supply a high protein, mineral and vitamin content. The yokes add color, the whites help bind other ingredients and both combine to add flavor and moisture to the bread.

Fresh eggs should be removed from the refrigerator and warmed to room temperature before they are used in dough. Frozen eggs should be completely defrosted before they are added to the dough and should be well mixed. Dehydrated egg mix may be sifted with the dry ingredients in some baked products containing a high percentage of dry ingredients; the water needed to reconstitute eggs should be added to the required liquid. Reconstituted eggs should be used within 1 hour after they are reconstituted or returned to the refrigerator until they are to be used. Do not hold them overnight.

LEAVENING AGENTS

Leavening agents are gases that cause the dough to rise. The gases are produced by chemical action or introduced by the mixing process, which forces air into the dough. The common types of leavening agents are steam, air and carbon dioxide gas. These agents are produced by yeast or baking soda or baking powder.

Air—Air is introduced into the dough by blending (creaming) fat and sugar together, by sifting flour, or by folding in beaten egg whites that already contain air. Steam is used to leaven éclairs and cream puffs.

Yeast—Yeast is a microscopic, one-celled plant that, when conditions are favorable, will multiply by budding or by the division of a cell into two cells. In this process of reproduction, the yeast plant uses available food (sugars) to produce carbon dioxide gas and alcohol. This is known as fermentation.

Active Dry Yeast—Active dry yeast should be suspended in about seven times its weight of water at 105°F to 110°F for 5 minutes before it is used. The proper temperature of the water is important, as water that is too cold or too hot will harm the yeast. Make sure the temperature of the water does not exceed 110°F. Active dry yeast does not require refrigeration, but should be stored in a dry and reasonably cool place. When properly stored, dry yeast will keep for many months.

Baking Soda—Baking soda acts as a leavening agent only when there is an acid present. Some of these acids are sour milk or buttermilk, molasses, brown sugar, honey, corn syrup, maple syrup, lemon juice and vinegar. These are used for different types of quick bread. Only a limited quantity of the acid ingredients can be used for leavening purposes due to the pronounced flavor and heavy texture that baking soda and molasses or syrup give to the products. It is also difficult to determine beforehand the amount of gas that these mixtures will produce. Thus, it is difficult to obtain standard results.

Baking Powder—Baking powder is a leavening agent that contains baking soda, a large amount of starch and a material that forms an acid when it is mixed with water, thus producing a gas.

There are several types of baking powder. The Navy uses a combination-type baking powder that contains the acids Sodium Aluminum Sulphate (S.A.S.) and orthophosphate plus sodium bicarbonate and a cornstarch filler. This type of baking powder is moderately double acting; one constituent acts in the batter, while the other does not act until it is heated in the oven. Baking powder is generally preferred over baking soda because it is more reliable.

Mixing Operation. The mixing operation accomplishes two functions. First, thorough mixing distributes the ingredients evenly. Secondly, it stretches the dough until the gluten is fully developed and distributed.

In the early stages of the mixing process, water wets the flour and the dry ingredients. At this stage, the dough will be rather wet and lumpy. As the mixing progresses, the flour continues to take up liquid and the dough becomes moderately firm.

When you are using high-speed mixers, the dough will become firm after several minutes of mixing, but the dough has no stretching characteristic. As mixing continues, the dough begins to bond and becomes more elastic. The lumpiness disappears and the dough becomes more firm as the flour picks up more moisture. At this stage, the dough is rather sticky and sticks to the mixer bowl quite easily. Next, the dough becomes less sticky and more elastic. When this happens, the back of the bowl begins to be cleared of dough and eventually becomes completely clear. At this time you should use careful judgment not to allow the mixing to progress too far or the dough will breakdown to a point where it loses elasticity and becomes sticky and runny. There is no rule governing the mixing time for dough other than the feel and appearance of the dough. When the mixing process is completed, the temperature of the dough should range between 78°F and 82°F.

Fermentation—After the mixing operation, the dough is either left in the mixing bowl or placed in a dough trough to ferment.

Fermentation is the chemical change that takes place when yeast (or other leavening agent) in the bread releases carbon dioxide gas, causing the dough to rise. The fermentation period is the time that elapses between the mixing of the dough and the time the yeast is killed by the oven heat. The correct temperature for the dough during fermentation is indicated on the recipe card. A higher temperature will cause the growth of undesirable bacteria (wild yeast) and excessive acidity, which will result in a coarse-grained bread of poor flavor.

The length of the fermentation period depends on the amount of yeast used, the strength of the flour and the temperature during fermentation. Too much yeast and higher temperatures than those designated will cause the dough to rise too fast. Insufficiently fermented or conditioned dough is called "young dough" while that which has fermented too long is known as "old dough."

Punching—Punching the dough after it rises develops the gluten and also redistributes the yeast cells. The temperature of the dough is equalized and some of the carbon dioxide gas is forced out. Yeast dough is ready for punching when it is light and approximately double in size. To test the dough to determine if it is ready for punching, press the dough lightly with a fingertip. If the impression closes up immediately, the dough is not ready. If the impression recedes slightly, it is ready to be punched or folded. The dough should then be punched.

To punch the dough you should use both hands and punch the dough through the center, going from end to end of the dough trough. Then, use both hands to grasp one side of the dough and pull it on top, once again working from end to end of the dough trough. To punch dough in a mixing bowl, punch the center, fold sides into the center, then turn completely over. After the dough has

rested for approximately 30 minutes, it should be taken from the bowl or trough to the bench for makeup.

Dough Makeup—The dough is divided into uniform pieces of the desired weight. When you are dividing the dough by hand, cut off the dough with the dough scraper and weigh the dough on a scale. Use the scraper to add or remove dough until the desired weight is obtained. This process is referred to as scaling. In a machine-operated bakeshop, the baker scales the pieces by machine, making adjustments so that the pieces will be the desired weight.

Rounding Dough—After scaling, the dough is rounded by tucking the raw edges and forming a smooth round ball. This process seals the raw edges that are left after the dough is divided.

Intermediate Proofing—The intermediate proofing period is a stage when the rounded piece of dough is allowed to rest between the time it is divided and rounded and the time it is formed for panning. The intermediate proofing period should be just long enough for a piece of dough to recover from being divided and rounded. The dough should be loose enough so that it can be easily molded. This requires from 12 to 15 minutes, depending on the dough and the conditions of the room.

Some of the advantages of rounding and giving the dough intermediate proof are it achieves uniform shape, facilitates panning, makes texture uniform, stretches gluten slowly, expels excess gas and forms skin on surface of dough.

Molding and Panning—The pieces of dough are shaped so that they can rise in the pan and form a shaped loaf of bread. Use the following steps in hand molding:

1. Place each piece of dough on the board, top side down. Use as little dusting flour as possible.

2. Press the gas out of the dough and pull lengthwise carefully, shaping the dough into an oblong loaf about the length of a finished loaf of bread.

3. Flatten the dough with your hands or with a rolling pin.

4. Shape the dough by folding in the ends to form a rectangle.

5. Fold the dough lengthwise to the center and seal by firm finger pressure.

6. Fold over the other half of the dough and press for additional seal.

7. Roll the dough to complete the sealing and molding of the loaf.

After the dough is molded into a loaf, place it in a lightly greased pan. Each loaf should be placed so that the molding seam is on the bottom and the loaf should be long enough to reach the ends of the pan. Figure 8-1 provides an example of the molding and shaping of dough into a loaf.

Pan Greasing—The primary purpose of lightly greasing the bread pan is to prevent the bread from sticking when it is removed. Too much grease on the pan surface can seriously affect the proofing, baking and slicing of the bread.

Pan Proofing—After shaping and panning, loaves should be placed in a properly controlled room or cabinet called the proof box or proof cabinet for the final proof or pan proof. Temperature of

the cabinet should be maintained at 90°F to 100°F. During pan proofing, the action of the yeast is speeded up by the higher temperature and the gluten becomes more mellow and elastic.

To determine whether the loaf is properly proofed, touch it lightly with one fingertip and press in slightly. If the impression made by the tip of the finger remains, the loaf is proofed. If the imprint does not remain and fills out when the fingertip is removed, the loaf is still too compact and should be proofed more. Usually, 50 to 75 minutes is sufficient.

Baking—The final stage in bread production is to place the pans of dough in an oven that is heated to a temperature sufficient to heat the dough quickly (temperature specified on Armed Forces Recipe Service (AFRS) recipes and to cause the carbon dioxide of the dough to expand, thereby greatly increasing the size of the dough. The oven temperature also vaporizes moisture on the surface of the bread and ultimately causes caramelization of the sugars, starches and other ingredients that make up the exposed dough surface. The oven temperature and the time required to bake a loaf of bread will vary, depending on several factors. When using convection ovens, follow the operating manual instructions or use the AFRS guideline card for convection ovens. Baking time is shorter and temperature is lower in a convection oven than in a conventional oven. Remember that some bread recipes will contain convection oven information as a note.

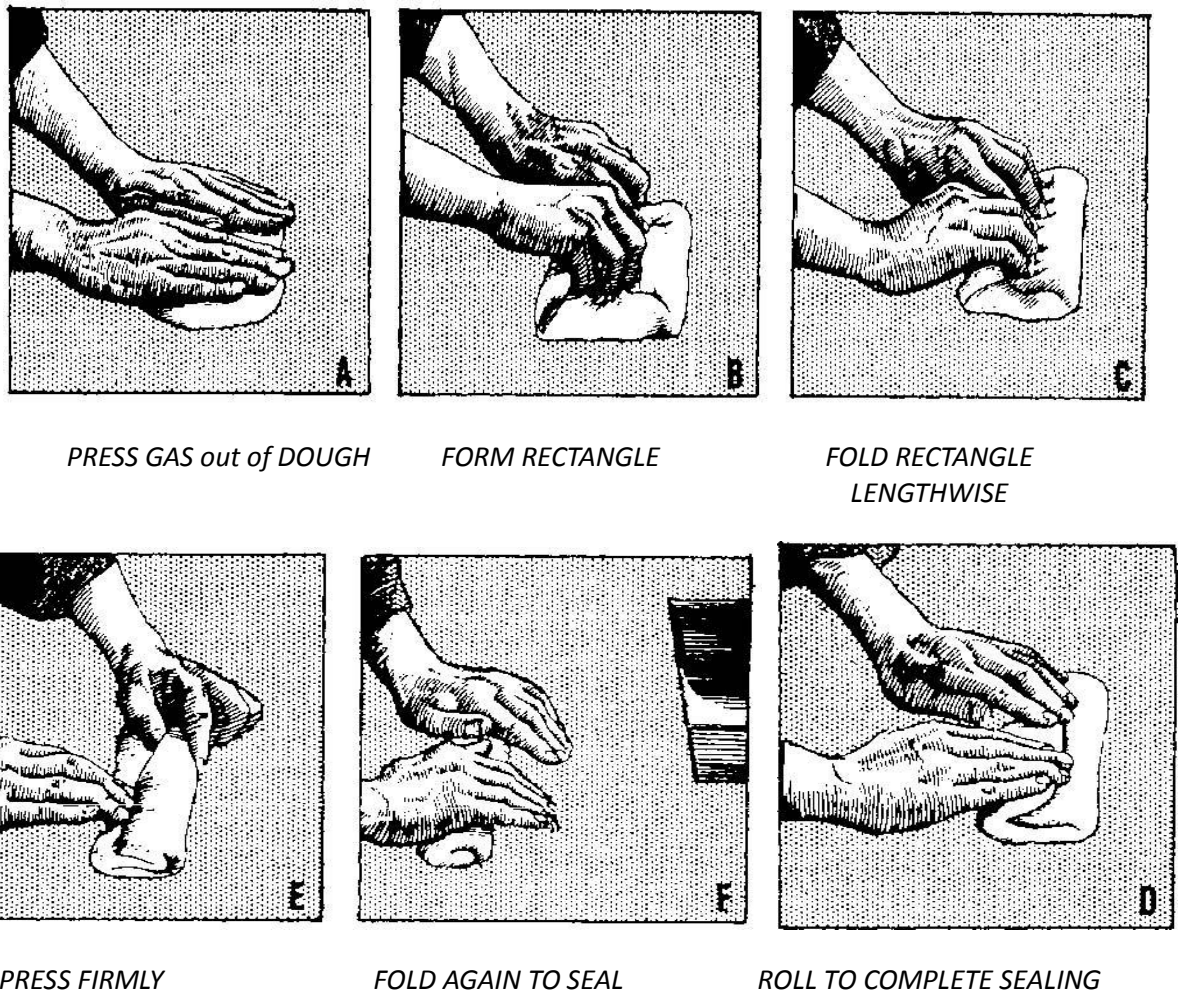


Figure 8-1.-Molding and shaping bread dough.

Bread is the end product of a long line of chemical and physical reactions. If the loaf is removed from the oven before these changes occur, no matter what crust color is obtained, the loaf will lack desirable qualities. Color and thickness of crust depend on the length of time the loaf is subjected to oven temperature and on the concentration of sugars. The aroma of under-baked bread will lack the full-scale, delicious fragrance characteristic of freshly baked bread. If sufficiently under-baked, the loaf sides will collapse and proper slicing is not possible.

The oven temperature may be controlled for the purpose of influencing bread character in other ways than just the color. A low oven temperature tends to open the grain of the loaf. If too high a temperature is used, the loaf may burst in a rather violent manner, usually along the sides, that results in a misshapen loaf.

A properly baked loaf of bread sounds hollow when tapped. Remove the baked loaves of bread from pans and cool on racks in areas free from drafts. Bread will dry out more quickly if the air is either too warm or too dry.

Cooling—After the bread is done, remove the loaves from the pans and place them on racks to cool, making sure there is at least a 1-inch space between loaves. Cooling usually takes from 1 1/2 to 2 hours. Bread should not be covered while it is warm

Storing and Serving—Bread should be stored at cool room temperature under conditions where it will not dry out. If wrapped in plastic bags that are closed with twisters, bread can be stored for up to 96 hours in a cool room. If the room is hot and humid, it may be necessary to store the bread under refrigeration to prevent mold from forming. Refrigeration is not ideal, however, for extended storage because bread stales more rapidly under refrigeration than it does at room temperature. This staling makes the bread firm and the crumb becomes coarse and hard. Bread may be held for extended periods if frozen in plastic wrap or bags. If freezer storage is impractical, bread quality is best maintained by baking in quantities that will be consumed within 48 hours.

The bread storage should be arranged so that the older bread always can be used first. Sliced bread left over from a previous meal can be thoroughly dried and used for bread crumbs, bread pudding, or crouton preparation.

Short-Time Formula—This formula was developed to meet a critical need aboard Navy ships with limited bakery space. The short-time formula eliminates both the intermediate proof and the final loaf-molding operation. This modified sponge-type dough produces a good loaf of bread.

More importantly, ships without production equipment can produce bread within 2 to 2 1/2 hours. In addition to eliminating the 8- to 10-minute intermediate proof, the baker can roll the rounded pieces into a sausage shape and pan—one person being able to roll and pan an average of 20 per minute. Hot rolls and variations may be prepared using the short-time formula. Follow the AFRS for best results.

A room temperature of 80°F should be maintained to assure the desired finished product. Any increase in the bakeshop temperature will, of course, reduce the fermentation time. Because of the absence of fermentation rooms aboard ship, this control is strictly dependent on the baker's skill and knowledge in determining the readiness of the dough. Mixing time will not change, however, as the 10-minute periods appear to be optimum for proper dough development under practically all conditions.

Undesirable Conditions—Certain undesirable conditions may develop in the baking and storing of bread that will not only spoil individual loaves and batches but will infest the bakery and contin-

ue to destroy subsequent baking's. Sanitary precautions against these conditions are particularly necessary in hot, humid climates.

Rope - Rope is an undesirable condition of bread caused by bacteria. The crumb of the loaf deteriorates, darkens and becomes sticky and wet. If the loaf is pulled apart, long wet strands will appear as it separates. Rope has an odor similar to overripe cantaloupe.

The rope spores that are formed from the active rope bacteria cells are highly resistant to heat and any that may be near the center of the loaf will not necessarily be killed by baking.

Temperatures of 85°F and above, particularly temperatures of 95°F to 105°F, promote the development of rope. When the climatic condition is such that the shop temperature is high, rope could develop even in doughs that are lower in temperature than 85°F. In the tropics, high humidity often accompanies high temperature. This increases the danger of rope developing in the bread. Also, doughs that are not sufficiently acid are highly subject to rope infection. Since acidity is normally increased through fermentation, overly warm dough may not have time to become sufficiently acid to retard the development of rope.

When the weather or climate is hot and humid, you should keep a sharp lookout for the appearance of rope and do everything in your power to prevent its development. By controlling the temperature of the doughs, you can keep them cold enough to retard the development of rope. A mold-preventive inhibitor can be added to the bread dough. To prevent the development of rope, you should take the following precautions:

- Baking ingredients should not be kept in the shop longer than necessary and those that are kept should be arranged in such a way as to allow free circulation of air around them
- The bread-baking schedule should be planned so that the bakery is not overstocked; this would result in some of the bread becoming old in the shop or in the storage room
- Bread that has accumulated and has become stale may be used for croutons and crumbs
- All bread should be thoroughly cooled before it is stored
- Keep equipment scrupulously clean and see that no pieces of previous doughs are allowed to remain in the shop. The shop and all equipment should be thoroughly cleaned as soon after it is used as possible.

In the event that rope does develop in your shop, it will be necessary to kill all the rope bacteria before you do any more baking. Generally, you should take the following precautions:

- Dispose of all baked products and baking ingredients in the shop
- Thoroughly clean the shop and all the equipment
- Wash the bulkheads, decks and overhead with hot soapy water and rinse them thoroughly
- Remove all foreign matter from all equipment and tools and from the cracks and seams in the oven
- Sterilize the workbench and all small equipment
- Rinse down everything a second time with a strong vinegar and water solution.

Mold - Mold is composed of tiny plants that are visible to the naked eye. There are many types of mold that vary in form and color. They form velvety, colored spots on the bread and create a musty odor. Mold spores are present in the air and will become visible on most any food substance if they are given sufficient time under proper conditions to develop. Mold will multiply in a warm, humid atmosphere or on moist food. The absence of light and sufficient time also contributes to their growth. Mold first appears on the side of the loaf.

Mold is not resistant to heat; therefore, mold that may be present in baking ingredients will probably be killed during baking. This means that any mold on the baked bread is a result of improper handling of the bread after it is baked.

To prevent the formation of mold in the bakeshop, take the following precautions:

- Keep the shop clean and dry
- Assure proper circulation of air in the shop
- Make sure all areas are lighted
- Bake bread thoroughly and cool properly before storing it
- Always avoid handling the bread with wet or damp hands
- Make sure bread is not kept for any length of time, since bread molds very quickly in storage.

ROLLS

Several types of hot rolls can be made from the basic recipe in the AFRS.

The method of making rolls is the same as that used for making bread. However, less mixing is required and the dough is much softer. Careful handling of the dough will assure light, tender rolls.

To make up the rolls, follow these steps (See Figure 8-2).

1. Divide the dough into 3 or 4-pound pieces.
2. Roll each piece of dough into a strip 1 1/2 inches in diameter.
3. Cut each strip into pieces weighing approximately 2 ounces each (Figure 8-2, view A).
4. Round each piece into a ball by rolling it with a circular motion on the workbench (Figure 8-2, view B).
5. When you have performed these basic steps you are ready to shape the dough into sandwich rolls, Parker House rolls, wiener rolls, or dinner rolls.

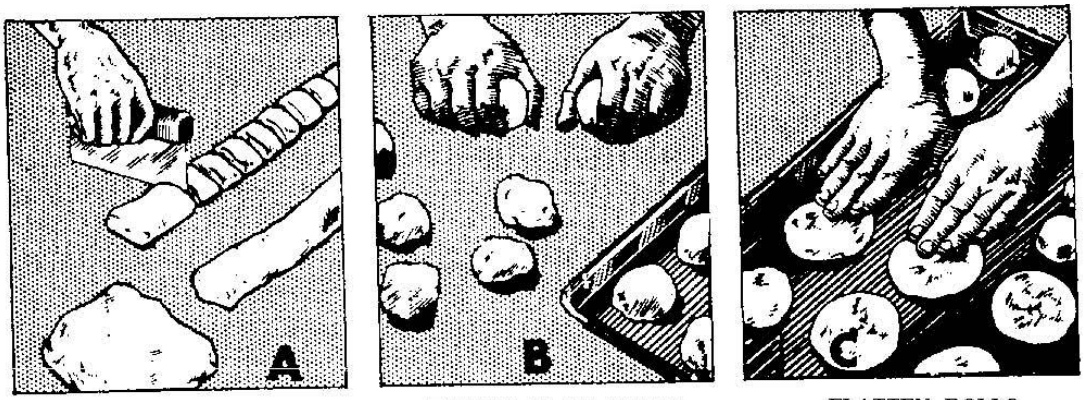


Figure 8-2, Making rolls.

Hot Roll Mix

Time-saving roll mixes have premeasured and combined ingredients except water and yeast. Follow package and can instructions in mixing, fermentation, panning the dough and bating.

Roll Production Precautions

The following precautions are associated with roll production:

- Like bread production, temperature control is important. The AFRS temperatures should be used. Too high a temperature will cause dough to ferment too rapidly and rolls will be sour or yeasty tasting. Too low a temperature causes heavy, tough rolls
- The amount of fermentation time needed depends on the amount of yeast and sugar used
- The first major step in preparing hot rolls is the dough makeup. The variety of shapes possible with soft and hard rolls is almost endless. Accurate scaling and skilled handling in forming shapes are required. Follow AFRS guidelines for hot roll makeup

- Since rolls are smaller than bread, proofing time is very critical. Therefore, over proofed rolls will be blistered on the surface and will fall when placed in the oven. The texture will be coarse.

Types of Rolls

Two variations of hot rolls—hard rolls and brown-and-serve rolls—can be made using the short-time formula. About 1 1/2 hours' preparation time per batch of hot rolls is saved if the short-time formula is used instead of the straight dough method. Also, a variety of sweet rolls can be made from the basic sweet dough recipe.

Brown and Serve Rolls—For makeup, follow the procedure described for plain rolls for cutting and shaping. About 30 minutes (three-fourths proof) is needed for proofing. Bake at 300°F for 10 to 12 minutes or until lightly browned. Partially baked rolls may be refrigerated at 40°F up to 2 days. If freezer space is available, these rolls freeze satisfactorily up to 5 days. Finish baking at 425°F for about 12 minutes.

Hard Rolls—Hard rolls should have a crisp crust. Hard rolls must be thoroughly fermented or well aged because young dough produces tough, rubbery crusts. Bread flour is necessary for properly fermented or aged dough. Allow 1 1/2 hours before punching. Varieties of hard rolls include round, French and caraway seed.

Sweet Rolls— A wide variety of sweet rolls can also be made from the simple basic sweet dough recipe. Sweet dough is prepared from a bread formula high in sugar, shortening, eggs and other enriching ingredients. There are two types of sweet dough—regular sweet dough and Danish pastry. Products prepared from either of these doughs may be similar in size, shape and weight but will differ considerably in texture. The fine, even grain and texture of regular sweet dough items are quite different from the flaky texture of the Danish pastry products. The dough should be smoother than bread dough, but it should not stick to your hands.

Among the types of sweet rolls that can be made from this basic recipe are cinnamon buns, butterfly rolls, double leaf rolls, pecan rolls, twists, chain twists, braids, bear claws, crullers, snails, crescents, raisin buns, hot cross buns, plain coffee cake, small coffee cakes and Swedish tea rings (Figure 8-3). Specific instructions for making each of these types of sweet rolls from the basic dough recipe are given in the AFRS.

Much of the attractiveness of sweet rolls is due to the glazes and fillings used. You will find the recipes for these glazes and fillings in the AFRS.

Sweet Dough Mix

Some General Messes (GMs) purchase commercial sweet dough mix that is available through the supply system.

Sweet dough mix has premeasured and combined ingredients, except for water and yeast. Follow package or can instructions in mixing, fermentation, panning and baking the dough.

Quick Breads

Quick breads are bakery products in which quick-acting leavening agents such as baking powder and baking soda are used. Examples of quick breads are pancakes, muffins and biscuits. These products require less time to mix and bake than yeast-raised products.

Roll-Out Doughs

Roll-out doughs are soft dough products such as baking powder biscuits, or stiff dough products such as cake doughnuts.

Dough or Batter Ingredients

Batters or doughs are made with dry mixtures of flour, baking powder, salt, liquids and other ingredients such as fats, eggs, sugar and flavoring.

Flour—General-purpose flour is used for quick breads and batters. General-purpose flour produces finer grained baked products than bread flours.

Liquids—Non-fat dry milk is used in recipes for quick breads. The dry milk is sifted together with the other ingredients and the liquid is added later in mixing.

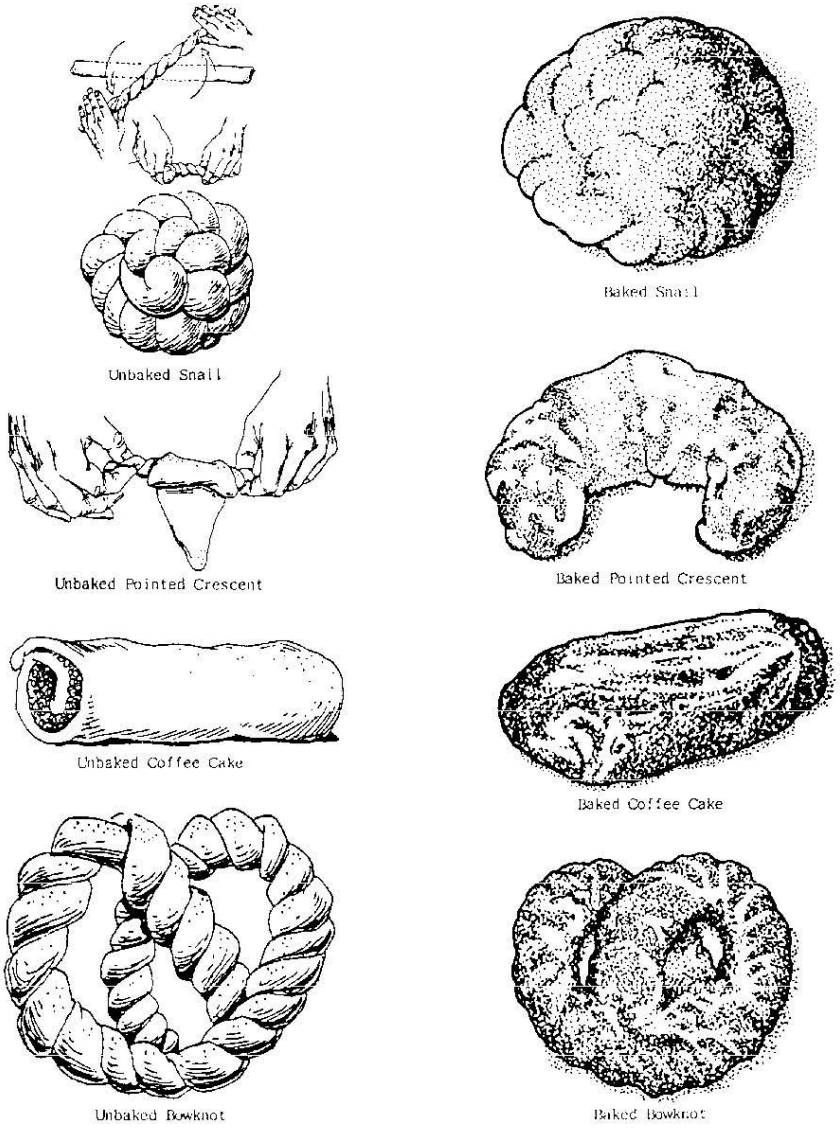


Figure 8-3.—Sample of sweet dough variations.

Leavening—Baking powder is the chemical leavening agent used in AFRS quick breads. It is a double-acting baking powder in which one stage of leavening occurs in the batter and another occurs while the product is baking.

The amount of baking powder used depends on the type of bakery product, the ingredients and their proportions. Baking powder must be measured accurately. Too much baking powder produces a coarse grain and may cause the product to fall after being taken out of the oven. If excessive baking powder is used, the color will be dark and yellowish and the taste will be salty or bitter. Too little baking powder will result in the structure being heavy and dense with low volume.

Fat—General-purpose shortening compound is used in quick bread and batter production. Shortenings produce products with a soft crumb and aid in browning.

Eggs—An important ingredient in quick breads and batter is eggs, which add flavor, color and palatability. They also provide some leavening action. Fresh whole eggs or frozen whole baking-type eggs are used. Dehydrated egg mix may be used as a successful substitute in any recipe if the eggs are sifted with the dry ingredients. This will assure even distribution and uniform reconstitution when the liquid is added.

Other Ingredients—Other ingredients include spices; grated, whole, or chopped fruits, nuts, poppy or caraway seeds; cereals such as bran or cornmeal; and salt. Salt adds flavor.

Mixing Methods

How ingredients are mixed determines to a large extent the structure and texture of the finished product. All ingredients should be evenly mixed. If needed, the flour gluten should be developed to the desired degree to keep the loss of the leavening gas to a minimum during baking.

These general rules apply to mixing quick breads and hatters, regardless of which mixing method is chosen:

- The degree of mixing is always limited when the leavening is produced by baking powder
- The amount of mixing varies with the kind of ingredients and their proportion, except for leavening, For example, a product containing a high percentage of fat and sugar maybe mixed longer with less harm to the quality of the finished product
- Recipes in the AFRS outline should be followed, step by step, as the method for mixing quick bread halters.

Muffin Mixing Method—This method is used for pancakes, muffins, corn bread, dumplings and fritters. The sequence of steps for the muffin method includes sifting dry ingredients together, blending in the liquid and eggs, adding melted shortening and mixing only until dry ingredients are moistened. Corn bread, muffin and dumpling batters should appear lumpy.

Biscuit or pastry Method—This means of combining ingredients is used principally for biscuits. This dough contains more flour than liquid and is of a kneaded consistency.

The dough is prepared by sifting dry ingredients together, blending in the shortening, adding the liquid and mixing only enough to yield a uniform structure. The dough is then cut into the desired shapes and baked.

Cake Method—Several quick breads and batters are mixed by the cake method. Cake doughnuts, coffee cakes and muffins are mixed similarly to batter cakes. Steps used in this method are as follows:

1. Cream shortening and sugar.

2. Add eggs.

3. Gradually add the dry ingredients to the moist ingredients, alternating so that you begin and end with the dry ingredients.

Quick Bread Preparation

Both drop and pour soft batters and roll-out dough preparation methods are important to know. These batters and roll-out doughs are explained individually in the following sections.

Coffee Cakes

Coffee cakes are popular breakfast or brunch items. The recipe formulas are the same as for regular cakes eaten as desserts, except for minor ingredient changes. The major difference is in the frosting used on cakes.

Coffee cakes are either topped with sweetened crumbs or combined with fruit. Crumb cake and quick coffee cake recipes in the AFRS are of this type. Serve these cakes while still warm. Quick coffee cakes may be prepared with biscuit mix. Check the AFRS for variations.

Corn Bread

Corn bread is a quick bread popular in both northern and southern parts of the United States. Yankee-style corn bread is prepared with sugar; southern style is prepared without sugar. Jalapeno corn bread may be prepared by adding chopped jalapeno peppers.

Corn bread can be baked in either sheet pans (18 by 26 inches) or the batter may be poured into muffin pans to make muffins. Corn bread mix is available. See the AFRS recipe card for directions.

Hush Puppies

Hush puppies are small balls of corn bread batter (about 2 tablespoons) that are deep-fat fried. Finely chopped onions and black or white pepper are added to the corn bread batter. The sugar is eliminated. Corn bread mix, a complete mix except for water, is available for preparing corn bread, muffins and hush puppies. Check the AFRS for directions.

Dumplings

There are two basic types of dumplings included in the AFRS. The first type is the meat dumpling that accompanies meat stew or poultry and is made from a dough that contains eggs and has no fat. This dumpling is light in texture and bland in flavor to accompany any meat or poultry entrée without overpowering it. This type is cooked by steam or in boiling stock. These dumplings are dropped by scoop or 1/4-cup measure on top of simmering stew. The kettle should be covered during the entire cooking period to assure fast and even doneness.

A finished dumpling should not be gummy. Dumpling quality should be the same when cooked in stock in kettles, stockpots, insert pans, or steamers. The outside of the dumpling is characteristically moist and the inside is light and fluffy. Dumplings absorb the flavor of the accompanying meat dish.

The other type of dumpling is a filled baked dessert and is explained later in this chapter.

Fritters

A fritter is a food, such as fruit, meat, poultry, or vegetables, that has been dipped in a milk-egg-flour batter and fried in deep fat. The food maybe uncooked, cooked, or a leftover. Fritters are made by combining a vegetable, such as corn, into the basic batter. The AFRS contains recipes for apple fritters and corn fritters.

The muffin method is used for mixing fritters; that is, dry ingredients are sifted together, liquid ingredients are combined and added with melted shortening. The amount of mixing is not as critical in the production of fritter or batter mixtures as it is with other quick breads because of the high ratio of liquid to flour and the volubility of the other ingredients. There is less tendency to overdevelop the flour gluten because the ingredients mix easily. Fritters are usually very tender products because they are cooked in deep fat.

Fritters should be thoroughly drained after drying. Place the fritters on absorbent paper for a short period. Fry in small batches because fritters lose crispness if allowed to stand on a steam table.

Commercial breading and batter fry mix is a product made of ingredients similar to those used in fritter batter. Fry mix may be used for deep-fat frying, pan frying, or for grilling. Pancake mix batter may also be used for making fritters.

Tempura Batter

Tempura batter is prepared from flour, baking powder, salt, ice-cold water and beaten eggs. The batter is unsweetened and lighter than fritter batter. It is used for dipping raw shrimp, onion rings, or a variety of other vegetables before frying. Check the AFRS for directions.

Pancakes

The muffin method is used in mixing pancakes. Mixing should be kept to a minimum to prevent the overdevelopment of the flour gluten, which causes a tough texture.

Cooking should begin as soon as the ingredients have been mixed. A hot, lightly greased griddle is essential in producing high-quality pancakes.

Muffins

Ingredients for muffins cover a wide range of products including fruits, nuts, bacon and cereals in addition to the plain muffin ingredients.

Muffins are mixed using the muffin method. The mixing time is more limited for muffins than for other products mixed by this method because of the high ratio of flour to liquid. After the addition of eggs, shortening and water, the muffin mixture should be stirred until dry ingredients are slightly moistened. It is essential that dry flour lumps be dampened. After mixing, the batter should appear quite

lumpy. If over mixed, tunnels and peaks form, the product texture is tough and the volume is low. Drained blueberries, chopped nuts, dates, or raisins are folded into the batter just before panning.

The panning procedure is an extremely important aspect in muffin preparation. The muffin pans should be well greased. Gas that causes the muffin to rise can escape rapidly if the mixed batter is allowed to stand. Scale each muffin carefully, filling each muffin cup two-thirds full. Too much batter in muffin pans causes muffins to be coarse. A well-prepared muffin has a uniform texture, even grain and a well-rounded but uniform top crust. A muffin mix is available. Prepare it according to instructions on the container.

Baking Powder Biscuits

Baking powder biscuits are prepared from flour, liquid, shortening, salt and a leavening agent. When mixing, the shortening should be cut in thoroughly until the mixture resembles cornmeal.

The proportion of liquid to dry ingredients is extremely important in the production of biscuit dough. The dough should be soft, not dry or stiff and slightly sticky. Gradually add water until dough is formed. The condition of the flour, moisture in the bake shop and the speed of mixing can alter the amount of liquid used. When to stop adding liquid will be recognized as experience is gained in the production of biscuits.

BISCUIT MIX

Biscuit mix also is used and contains all the ingredients except water. The leavening agent is packaged separately from the other ingredients. It should be thoroughly blended with the mix before blending in the required water. Follow directions for baking listed on the container.

Biscuit Variations

Biscuit variations may be prepared by rolling the dough in a rectangular shape, spreading the dough with butter and adding brown sugar and nuts or a granulated sugar-cinnamon-raisin filling. The biscuit dough is rolled up like a jelly roll and the biscuits are then sliced. Cheddar or American cheese that has been grated maybe added to the dry ingredients to make cheese biscuits.

Cutting and Panning

Biscuit cutters used are 2 1/2 inches in diameter. Dip cutters in flour and tap lightly to remove the excess flour before cutting out the biscuits. Cut the biscuits so that rounds do not overlap.

Biscuit dough also may be patted on baking sheets and cut with a sharp knife in squares to speed up production and to save rerolling of dough. If little space is left between each biscuit on the pan, less crust is formed. If more crust is wanted, place biscuits farther apart. Baking powder biscuits should be baked at the temperature listed in the AFRS. They are best when served piping hot.

YEAST-RAISED DOUGHNUTS

The doughnut formula is basically a sweet dough; however, leavening and eggs are de-creased and a combination of bread and general-purpose flours is used. A blend of general-purpose and bread flours produces a more tender texture and a shorter fermentation time than if all bread flour is used.

Doughnut formulas contain different percentages of sugar, shortening and eggs; the greater amount used, the richer the dough. However, variations in richness for yeast-raised doughnuts do not extend over as wide a possible range as with cake doughnut formulas that tolerate larger quantities of sugar and eggs.

The sugar content in yeast-raised doughnuts controls, to some extent, the amount of browning and fat absorption during frying.

The quality of ingredients is just as important in doughnut production as it is in other yeast-raised items. Extreme care in mixing, fermentation and makeup is essential to high-quality doughnut production.

Mixing

Mixing temperature should be controlled so that the dough leaves the mixer at 78°F to 82°F. The temperature of ingredients when mixed has a definite effect on the amount of fat absorbed during frying. Mixing time should be limited to 10 minutes or until the dough is smooth and elastic.

Fermentation and Makeup

Mixed doughs should be immediately divided into uniform pieces, the size of which depends on the weight of the entire batch being made up. Follow recipe instructions for rolling and cutting, as thickness of dough and uniformity of doughnut size are extremely important to proper frying. If there are cracks in the dough, or if it is stretched unnecessarily, the dough will tend to absorb a greater amount of fat during frying.

Cutting

Doughnut cutters should be used carefully to prevent overlapping the cuts and wasting the dough. Reworked and rerolled dough can be used, but will not give cut doughnuts a smooth surface or an even brown color.

Doughnuts may be cut into various shapes. Other than the characteristic round shape without centers, there are long johns, crullers and beignets.

Yeast-raised doughnuts are neither dispensed from a machine into frying fat nor mechanically cut because they require a short proofing period.

Frying

Recommended temperature of the fat is 375°F for raised doughnuts. Make certain the correct temperature is used because doughnuts will soak up fat that is too cool and will brown before they are done if fat is too hot. To allow for expansion of dough and turning room, place cut doughnuts carefully in fry baskets one-half inch apart and lower into hot fat.

Normal fat absorption should be 2 to 3 ounces per dozen. This absorption is both desirable and necessary to create high-quality products. Grease soaking is undesirable, however and is caused principally by undermining of dough, misshapen cuts and rough surfaces and poor-quality fat used in the frying process. A fat-soaked doughnut is heavy, greasy tasting and stales very rapidly.

Doughnuts removed from the fat should be thoroughly drained on racks or absorbent paper and cooled to 160°F if glazed. If topped with coatings, doughnuts should be cooled to 72°F (room temperature).

Filling and Finishes

Fillings made from fruits such as cherries, pineapple and prunes, almond paste, cream fillings, or sugar and spice mixtures may be used to fill coffee cakes, sweet dough and Danish pastry. The following are the most commonly used combinations:

- Dry coatings such as cinnamon-sugar filling, powdered sugar, or granulated sugar
- Glazes such as vanilla or butterscotch for doughnuts and syrup or syrup-fruit glazes for sweet rolls and coffee cakes
- Washes for breads, rolls and coffee cakes
- Toppings.

Dry Coatings

The dry coatings are used most often on cake doughnuts. Using dry sugar coatings is somewhat more complicated than merely shaking together a properly cooled fried cake doughnut and sugar in a paper bag.

Sugar coating will shed off rapidly from an overcooked, dry doughnut. On the other hand, a sugared doughnut appearing moist on the surface may be an undercooked doughnut. If the sugar melts or disappears, the doughnut is too moist. This condition is known in the baking industry as sweating. Follow the AFRS for preparing cake doughnuts. Cake doughnuts should be cooled before being sugared.

Glazes

A vanilla glaze is usually applied to yeast-raised doughnuts, but cake doughnuts also may be glazed. Other glazes incorporating imitation maple, rum, brandy, cherry, almond and black walnut flavoring may be used.

Doughnut glazing is somewhat more complicated than the sugaring process because the glaze is much less stable, particularly at warm temperatures. Glazes should be sufficiently thin to flow and to allow the excess to roll off.

Yeast doughnuts should not be less than 160°F when glaze is applied. Taken from 375°F deep fat, a doughnut will cool to the proper temperature in about 1 to 2 minutes. Doughnuts should be submerged into the glaze and drained on a wire screen until the glaze is set. Air circulation around the entire doughnut is important in setting the glaze.

Syrup glazes are usually applied to rolls or coffee cakes. A syrup glaze is prepared from a mixture of blended syrup and water that is boiled for 5 minutes. For variation, a fruit juice or pureed fruit, sugar and syrup mixture can be prepared. Brush syrup glazes over hot baked coffee cakes and sweet rolls.

Washes

Washes are applied to sweet doughs before baking and are used in addition to glazes or toppings in many products. They are used also on pastry, some quick breads, yeast bread (rolls and buns) and bar cookies.

Washes serve two functions: (1) to wash off excess flour and facilitate browning and (2) to provide a surface to help added toppings such as nuts, fruits, poppy or sesame seeds, or onions stick to the products. Any one of the following ingredients maybe used individual y or in combination: butter, cornstarch, whole eggs and egg whites.

Toppings

Toppings such as glazed nut, orange coconut, raisin, streusel, pecan, or praline toppings are added to sweet rolls or coffee cakes before baking.

PIZZA

Almost any lean dough formula, such as that for French bread, can be used for making pizza. The major difference between a particular formula for pizza and lean bread doughs is that the yeast is not fed. That is, sugar is not an ingredient in a pizza formula because it is not needed to supply the yeast energy. Volume is not a factor in pizza doughs. Fermentation for pizza is relatively short in comparison with other bread doughs and makeup consists only of flattening the dough to the required dimensions.

Partially baked pizza crusts are prepared commercially and frozen. Add galley-prepared pizza sauce and bake according to package directions.

DESSERTS

Desserts are popular in the GM. A dessert maybe as simple as a fruit gelatin or as elaborate as a decorated cake. The AFRS has a wide variety of recipes for all types of desserts. The AFRS also has step-by-step procedures for the preparation and service of desserts, but the end result is often determined by the dedication and experience of the Culinary Specialist (CS) that prepares the dessert.

CAKES

Cakes are popular desserts in the GM. A wide variety of colors from a few basic recipes are possible through the use of varied shapes, frostings, or fillings. Cakes are easily made in large quantities and they are less perishable than many other types of desserts. Service in the GM is greatly facilitated by the use of cakes for dessert because they can be made up ahead of time.

TYPES

Cakes can be divided into three separate types according to the ingredients and the proportions of the ingredients used in each. The three types are batter cakes, foam cakes and chiffon cakes.

Batter Cakes

Batter cakes contain shortening. They include the pound cakes (loaf type) containing a high percentage of fat, the plain cakes (basic type of layer) containing smaller percentages of fat and the chocolate cakes (incorporating cocoa and soda) such as devil's food and mild chocolate cakes.

Foam Cakes

Two kinds of foam cakes served in the GM are angel food and sponge cakes. Angel food cakes are foam cakes that are leavened by air beaten into the egg white. Cream of tartar is added to the egg whites to make them firmer when they are beaten.

Sponge cakes are foam cakes containing baking powder and whole eggs. The eggs are combined with the sugar and heated until the mixture is lukewarm (110°F) and then the mixture is beaten.

Chiffon Cakes

Chiffon cakes contain both foam and batter, mixed separately and folded to a mixture.

The subdivisions of the three types are many and dependent upon the method of incorporating the ingredients and upon the variation of ingredients added to the basic recipe. Batter and sponge-type cakes are the ones normally prepared in Navy dining facilities; consequently, further discussion will relate only to these.

FUNCTIONS of CAKE INGREDIENTS

Each ingredient in a basic recipe has a specific function.

Flour - furnishes structure and is used to hold the other materials together in making a cake. It should be general-purpose flour.

Sugars - used chiefly as sweeteners, have a tenderizing effect resulting from their ability to soften flour protein and starches. By lowering the caramelization point of the batter, sugars allow the cake crust to color at a lower temperature. Sugars also help to retain moisture in the baked cake, thereby keeping the cake moist and edible for several days.

Shortening - carries the air that is incorporated in the finished cake batter. This air has a tenderizing action on the cake by virtue of its leavening action. Thus, shortening is considered to be a tenderizing agent.

Eggs - furnish structure, moisture, flavor and color. Egg whites for whipping must be free from grease or traces of egg yoke—as little as one-tenth of 1 percent will adversely affect the whipping quality.

Milk, water, fruit juice, or coffee - can be used as the liquid in cake. Liquid is needed to combine and actuate all other ingredients. It controls the consistency of the finished cake batter.

Salt - brings out the flavor of the other ingredients.

Leavening - is accomplished in three ways:

1. Incorporation of air during mixing

2. Chemical leavening
3. Vaporization of the liquids in the dough by the heat of the oven.

CAKE MIXES

Cake mixes are convenient to use as they require shorter preparation time, less storage space, no refrigeration and less training and experience to prepare successfully than cakes made from recipes using the basic ingredients. Cake mixes are available in a variety of flavors and preparation instructions are printed on the containers. Cake mixes are complete mixes that require only the addition of water. They contain a leavening agent, bicarbonate of soda (baking soda), packed separately inside the container. The soda packet should be mixed thoroughly with the dry ingredients before adding water. Cheesecake mix is combined with milk before mixing. No baking is required. Recipes for variation to cake mixes are given in the AFRS.

CAKE MAKING

In addition to the proper selection of ingredients, accurate measuring and proper mixing, other factors influence the finished product.

CAKE PANS

Cake pans should be handled carefully so that they do not warp or bend. You should not use pans that are bent out of shape because cakes will be uneven in shape and cola. Cake pans maybe greased or greased and dusted with flour, or they may be lined with wax or craft paper. Some recipes call for a pan coating made from shortening and flour mixed together. Pans for angel food cake should not be greased because the fat will keep the cake from rising. Each AFRS cake recipe specifies which method is used.

PAN CLEANING

If grease is allowed to build up in pans, especially in corners, it can become rancid and give a very objectionable taste. Care should be taken to clean baking pans thoroughly each time they are used.

SCALING

Scaling too much batter or using the wrong size pan can cause the cake to fail. Follow the instructions given on the specific recipe card. The AFRS cake recipes are designed to yield the correct amount of batter for standard 18- by 26-inch sheet cake pans. Use only lightweight sheet pans. If heavier sheet pans are used, they will cause overdone products. Other pan sizes may be used such as 9-inch layer pans or 16-inch square sheet pans. A listing of pans and sizes is found on the AFRS guideline cards.

OVEN TEMPERATURES

Set the oven at the temperature specified in the recipe or in the cake mix directions and allow enough time for it to reach the correct temperature so that the cake can be placed in the oven at the specified baking temperature as soon as it is mixed. The oven thermostat should be checked from time to time to make sure it is working properly.

Allow space in the oven between the pans so that heat can circulate. Cake pans should be placed so that they do not touch each other or the sides of the oven.

If the oven is too hot, the cake will have a peaked, cracked surface and will be too brown. It will also be dry and shrink excessively. If the cake is baked too rapidly, the outer edges will be done while the center will be uncooked and the cake will fall when it is removed from the oven. If the temperature is too low, the cake will not rise well. The AFRS guideline cards give the cause of cake defects and failures.

BAKING

During baking, the proteins in the flour and eggs coagulate and the starch in the flour swells and absorbs moisture, causing the cake to become firm. Baking takes place in four stages. In the first stage, the batter is fluid and rises rapidly as the leavening develops. In the second stage, the batter continues to rise and the cake becomes higher in the center than at the edges. Bubbles rise to the top, the surface begins to brown and the batter begins to become firm on the edges. In the third stage, the cake has completed rising and it becomes freer and browner. In the fourth stage, browning is completed and the structure is set. When you are baking in a conventional oven, do not open the oven door until baking time is almost ended or the cake may fall.

USING CONVECTION OVENS

Baking times are shorter and cooking temperatures lower in convection ovens than in conventional ovens. The AFRS guideline cards list specific times and temperatures. Overloading convection ovens will cause cakes to bake unevenly. When operating a convection oven, you should turn off the fan when loading and unloading. To load cakes into convection ovens, you should start with the bottom rack and center the pans, taking care not to touch the heating elements. Leave 1 to 2 inches between pans so air can circulate. After you load the cakes, allow them to bake for 7 to 10 minutes before turning on the blower. Or, if the fan has two speeds, use the lower speed.

Check the cakes in about one-half the cooking time specified in the convection oven owner's manual. If the cakes are baking too quickly (cooked around the edges, but not done in the middle), reduce the heat 15°F to 25°F and use this lower temperature for each successive load. The oven vent should be open when baking cakes. If the vent is closed, the moisture in the oven will keep the cakes from rising. A fully loaded convection oven will bake cakes more slowly than a partially loaded oven.

TESTING for DONENESS

To determine if the cake is done, touch the center of the cake lightly. If an impression remains, return the cake to the oven for 3 to 5 minutes more and then retest. A toothpick or wire cake tester may be inserted into the cake. If no batter clings when it is removed, the cake is done. Batter cakes will shrink slightly from the sides of the pans when done.

COOLING

If space is limited, cakes may be cooled, frosted and served in the baking pan. If the cake is to be removed from the pan for icing, decorating and service, allow it to cool for about 15 minutes or as directed in the specific recipe. Remove jelly rolls from pans while they are hot. Paper liners should be removed while the cake is still hot. If allowed to cool, the paper will cause the cake to pull apart and tear. Generally, however, for most cake items use a spatula to gently loosen the cake around the sides of the pan. Cover the cake with the bottom side of a clean pan of the same size and invert both

pans. The cake should drop easily onto the clean pan. Cakes baked in loaf pans should be cooled completely in an upright position before they are removed. Cut around the sides, tilt the pan and slide the cake out gently.

CAKE CUTTING

To prevent breaking, cakes should be completely cooled before icing and cutting. Cakes baked in standard-size sheet pans are usually cut into 54 square pieces, 6 across and 9 down.

For other cake shapes consult the AFRS guideline cards. To cut a cake use a knife with a sharp, straight edge and a thin blade. Dip the knife in hot water before cutting and repeat as necessary to keep crumbs and frosting from clinging to the knife. Cut with a light, even motion. A loaf cake or fruitcake should be cut with a slow sawing motion. Fruitcakes cut easier if they are chilled first.

STORING CAKES

Cover cakes with moisture-proof paper and place them in a clean area with a temperature range of 75°F to 95°F where they will not absorb odors. Cakes should be served within 1 to 2 days for best quality.

CAKE DECORATING

Cake decorating does not have to be limited to holidays and special events, such as a change of command or a retirement. Some commands honor the birthdays of crew members weekly with a decorated cake. This gives the CSs frequent opportunities to practice and develop their skills at cake decorating.

The first important step in cake decorating is to have a frosting of the type and consistency required to make the desired shapes. Decorators' frosting and cream frostings are suitable. Frostings used for decorating should be stiffer than those used for spreading.

Decorating Equipment

The second important step in cake decorating is to have the equipment needed: cones, tips, tubes and coloring.

Cones—The cones used for cake decorating may be either pastry bags purchased to fit commercial tubes, or they maybe made from paper. Paper cones are easily made, are disposable and are sanitary. The best paper used to make a cone is parchment paper. Heavy waxed paper also can be used, although it is less rigid and, therefore, more difficult to handle. Several cones can be filled with different frosting colors to be used alternatively in decoration.

Tubes—There are many kinds and sizes of metal tubes (tips) available. They can be selected from those in standard stock or purchased to fit individual requirements. By varying the colors of the frosting and the sizes of the metal tips, a wide variety of decorations can be made. Borders can be plain or elaborate, depending on the tube used. Writing should be carefully planned before starting so it will be well centered.

Food Colorings—Food colorings are available in paste and liquid forms. A little coloring goes a long way. Food coloring paste will give dark shades when desired, but will not thin the frosting. Liquid colorings will thin icings and will provide only pastel shades.

To color frosting, first blend the coloring into a small amount of frosting. Then add this blend gradually to the rest of the frosting until the desired shade is obtained. Use paste shades. Dark colors, such as bright red, blue and green, should be used only for accents and for holiday cakes.

Secondary colors may be obtained by blending primary colors:

- Blue and yellow make green
- Yellow and red make orange
- Red and blue make violet.

By shading violet with blue, purple is obtained; violet with red yields a reddish violet. By using red or orange, you can make red or yellow-orange by shading orange with either red or yellow. Blue-green will result when green is shaded with yellow or blue.

Try to keep icing colors as close to nature as possible by leaning toward pastels. If you must use bright colors, use them sparingly, as accents mostly and for children's and holiday cakes. Concentrated paste colors are best to use. They give you dark shades when you want them and will not thin icings as liquids sometimes do.

Frostings

Frostings add to the appearance and flavor of cakes and help to keep them moist. Some cakes, such as pound cake and fruitcake, are generally served without frosting, but most cakes require some kind of frosting or glaze. Jelly rolls are filled with jelly or cream filling and powdered sugar is sprinkled on top.

Frosting Ingredients—Ingredients used to prepare frostings include liquids, sugar, fat, flavoring and salt.

Liquids. Liquids make the frostings soft enough to spread. Milk water, coffee and various fruit juices are the liquids specified in frosting recipes.

Sugar. The kinds of sugar used to make frostings are granulated, brown, powdered (confectioners) and blended syrup (corn and refiner's). Powdered sugar is preferable in uncooked frosting because it is fine grained and dissolves rapidly. Blended syrup prevents the formation of large crystals that cause graininess in cooked frostings. If too much syrup is used, it will keep cooked frostings from hardening.

Fat. Butter is the fat ingredient usually specified in the AFRS frostings.

Flavoring. The AFRS frosting recipes specify vanilla flavoring, but other kinds of flavoring may be substituted where they would be appropriate for the flavor of the cake. Some of the flavorings available are imitation almond, banana, brandy, black walnut, cherry, lemon, maple, orange, peppermint, pineapple and rum.

Salt. Salt is an important ingredient in frostings because it brings out the other flavors.

Uncooked Frostings—Uncooked frostings are easy and quick to prepare. All ingredients should be blended at room temperature. Powdered sugar is the major ingredient in cream frostings; other basic ingredients are softened butter and liquid. The secret of a good uncooked frosting is thorough creaming until the product is light and fluffy. If frosting is too thick, add a little liquid. If too thin,

add additional powdered sugar until the desired consistency is obtained. More flavoring may be required to prevent a flat sugar taste.

Decorator's frosting, a very hard uncooked frosting, is used to make decorative or special occasion cakes. It is suitable for making designs, flowers, latticework, or other forms. The decorations can be set on waxed paper to dry and then removed and placed on the cake. Because this type of frosting dries rapidly, unused portions should be covered. Royal frosting is better to use for decorating than other frostings that are softer and might run or weep.

Cooked Frostings—Temperature is very important in cooked frostings. Follow the directions given for cooked frostings in the AFRS. For best results, cakes with cooked frostings should be used on the same day they are prepared.

Cake Frosting Procedures—Cakes should be completely cooled, but not chilled before frosting. This prevents the cake from breaking when frosting is spread over it. Remove loose crumbs. The consistency of the frosting should be such that it spreads easily, but is not so thin that it runs off. The cake should be frosted far enough ahead of time (an hour or more) to allow the frosting to set before it is served.

To frost a cake, space six equal portions of frosting evenly over the center of the cake. Using a spatula, spread the frosting to the same thickness across the top and to the edges of the cake. The AFRS has guidelines for preparing frosting and for frosting all types of cakes.

Toppings, Glazes and Fillings—Toppings, glazes and fillings, or a combination of these, can enhance the flavor, texture and appearance of cakes. Some cakes are identified by the toppings or glazes. Pineapple, or other fruit, combined with brown sugar and melted butter and covered with yellow cake batter makes upside-down cakes. Shortcake are made by serving fruit and whipped topping with plain cake. Gingerbread is usually served with whipped topping or lemon sauce. Boston cream pie is a cake with a cream filling and covered with chocolate glaze. To make jelly rolls, sponge cake is spread with jelly, rolled and cut in slices. Vanilla glaze topping may be spread over angel food cakes or drizzled over Bundt-type cakes such as chocolate macaroon cake. Ice-cream toppings and powdered sugar may be served with pound cakes for variation.

COOKIES

Cookies are a popular dessert. Unlike most other desserts they can be stored for a day or more and used as they are needed. The various types of cookies are defined by the special processes used in making them. These types and processes are described in the following paragraphs. General directions for successful cookie making are summarized.

Types of Cookies

Cookies are often referred to as small sweet cakes and classified by the method of mixing: stiff dough, soft dough and refrigerated dough. Recipes for the three classes of cookies are contained in the AFRS. The following types of dough are used in the production of cookies: soft dough is used for drop cookies; stiff dough is formed into a roll and baked on sheet pans; and refrigerated dough is formed into a roll, wrapped and refrigerated until sliced and baked.

Cookies are formulated much like cake, except that there is less liquid (eggs and milk) and the baked cookies are characterized by soft, hard, brittle, or chewy textures.

Soft Dough—Soft-batter cookies have a high moisture content and, therefore, require a greater percentage of eggs to give them structure. The desired finished product is soft and moist and should be stored or packaged in a container with a tight-fitting cover.

Cookies included in this category are dropped cookies of all sorts and brownies (butterscotch and chocolate).

Stiff Dough—Formulas of stiff dough contain less liquid and eggs and more flour than soft cookies. These cookies are often referred to as sliced or rolled cookies. The desirable finished product is crisp. When humidity becomes excessive, the cookies become moist and tend to soften up and lose their desirable crispness. Examples are peanut butter cookies and sugar cookies. Crisp cookies should be stored in a container with a loose-fitting cover.

Refrigerator Dough—Refrigerator cookies are mixed in the same manner as other cookies, except the dough is very stiff. The resulting cookie is very brittle. After the mixing is completed, the dough is weighed into pieces of convenient size. The dough is then formed into rolls, then they are sliced into the desired slices, wrapped in wax paper and put into the refrigerator until time to bake them. The advantage of this type of cookie is that it can be made and stored in the refrigerator until it is needed, thus eliminating waste and providing a ready source of dessert at short notice. Butternut and chocolate refrigerator cookies are good examples.

Mixing Methods

Cookies are mixed in much the same manner as batter cakes. The temperature of the ingredients should be approximately 70°F. The dough is sometimes chilled later to facilitate shaping.

Cookie doughs should be mixed just enough to blend the ingredients thoroughly. Over mixing develops the gluten in the dough, thereby retarding the spread. When the mix is over creamed, the cookies will not spread as much because of the dissolving of the sugar crystals. Improper mixing of ingredients will produce cookies that are spotted.

The conventional or creaming method is the most commonly used method. The longer the shortening and sugar are creamed, the less spread the final product will have because the sugar will be more finely distributed throughout the mix. The longer the dough is mixed after blending the flour and water, the more developed the structure of the mix will become and less spread will result. Under creaming will give the cookies a coarse structure and will result in a baked product that has too much spread. If lumps of sugar are left in the dough during mixing, sticking is likely to occur due to the syrup that is formed during baking. Then, the sugar becomes hard and solidifies on the pans.

For convenience in preparation, oatmeal cookie mix is authorized throughout the Navy. The mix is packaged in No. 10 cans. One can (5 pounds) of mix yields 100 cookies. Preparation is simple. The mix is combined with water and the dough may be dropped, rolled, or sliced. A variety of cookies can be prepared from the basic mix. Instructions for raisin, date, nut, chocolate chip and applesauce variations are printed on the container.

PIES

A successful pie should have a tender crust. To make sure the piecrust is tender the proper ingredients must be used and the dough should be carefully mixed.

If properly made, the standard pie crust has outstanding characteristics. In appearance, it will be golden brown with a rough surface that appears blistered. The texture will be flaky or mealy de-

pending upon the method used to combine the ingredients. It should be tender enough to cut easily, but not so tender that it breaks or crumbles. The flavor should be delicate and pleasing.

Pie Crust Ingredients

Pie crusts are made from flour, shortening, water and salt.

Flour—General-purpose flour should be used to make piecrust as it produces pie dough that is easy to handle and pan. *Do not use bread flour*. It will cause tough pastry.

Shortening—General-purpose shortening compound should be used as it makes the crust flaky and tender. Rancid shortening or shortening that has absorbed other odors causes off-flavors in piecrust and should never be used. The shortening should be approximately 60°F when ready for mixing and just soft enough to blend with the other ingredients. At 60°F, the shortening blends well into the flour while giving firmness so that a flaky piecrust is produced. Bakery emulsifier shortening, melted shortening, or salad oil should not be used as they will cause the dough to be oily and hard to handle and will not produce flaky piecrusts.

Water—The quantity of water and the method of mixing it with the other ingredients are the most important factors in making a tender piecrust. The water should be cold (40°F to 50°F). The amount of water should be sufficient to make a dough that forms a ball that does not crumble, but also is not sticky when rolled out. Too much water will cause toughness.

Salt—Salt aids in binding the ingredients together and enhances the flavors of the other ingredients.

Mixing

The flour and shortening should be mixed together until they form very small particles and are granular in appearance. When mixing by hand, the water should be added gradually until the dough reaches the right consistency—neither sticky nor crumbly. When you are machine mixing, the water is added all at once and mixed just until the dough is made.

Rolling the Dough

Divide the mixed dough into three sections (about 5 pounds 3 ounces each) and chill for at least 1 hour. The chilled dough will be easier to handle. When you are rolling the dough, handle it as little as possible, the pastry board or workbench and rolling pin should be dusted lightly with flour to prevent the dough from sticking. Using a dough divider, cut the dough sections into 7-ounce pieces for top crusts and 7 1/2-ounce pieces for bottom crusts when making two-crust pies. For one-crust pies, 7 1/2-ounce pieces should be used.

Lightly dust each piece of dough with flour and flatten the pieces gently with the palm of the hand before rolling. Use quick strokes and roll from the center toward the edge to form a circle about 1 inch larger than the pan and about one-eighth inch thick. If the dough is stretched or forced, it will shrink back during baking. Pie dough pieces may be placed into a pie rolling machine, if available. The pie dough will be rolled out automatically into a circular shape and ready for panning. Do not grease pie pans. The dough has enough shortening to keep the crust from sticking.

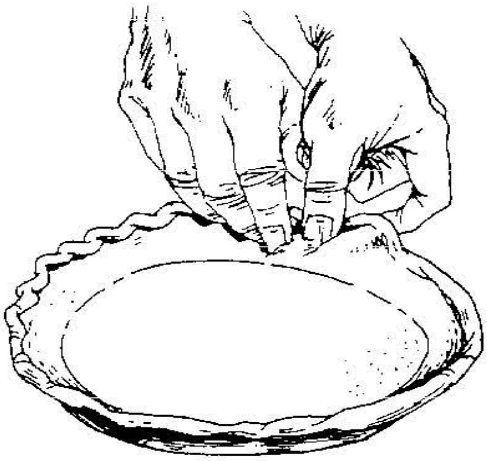
Fold the circle of dough in half and place it in the pan, then unfold it to fit smoothly in the pan. Make sure to fit the dough carefully into the pan so that it is flat and air pockets cannot form between the pan and dough.

Types of Pies

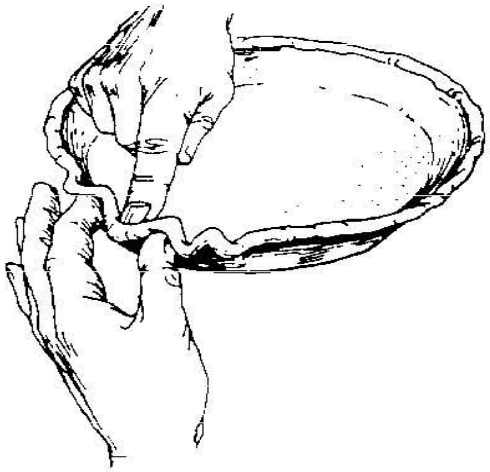
The types of pies prepared in the GM are one-crust (custard type), one-crust (prebaked shell) and double-crust pies.

One Crust Pie (Custard Type)—After you roll out the dough and place it in the pan, make an edging by forming a high-standing rim on the pie shell and fluting (Fig. 8-4) .Fill the pie with filling and bake according to the recipes.

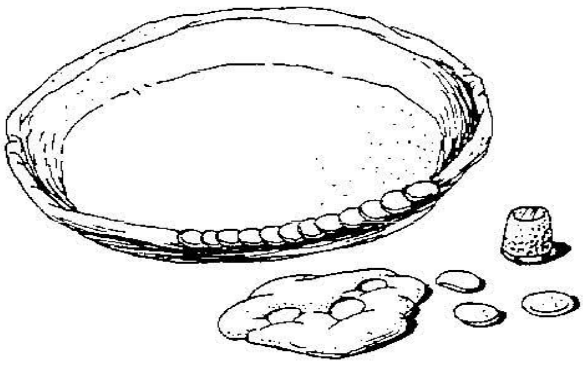
One Crust Pies (Prebaked Shell)—After placing the dough in the pan and fluting the edges, the dough should be pricked with a fork or docked. This enables air or steam that is formed underneath the crust during baking to escape without causing the crust to puff up or crack



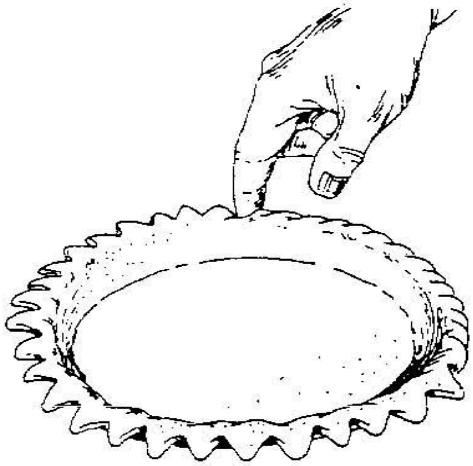
Fluted: Form a high-standing rim. Place right index finger inside rim; make flutes every 1/2-inch by pushing pastry into V with left thumb and index finger outside rim. Pinch flutes for clean edges.



Scalloped: Form a standing rim. Place left thumb and index finger 3/4-inch apart on outside of rim. With right index finger, pull pastry to center to form scallop. (For one-crust pies only.)

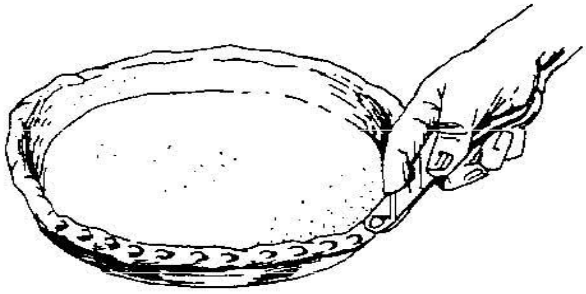


Coin: Trim pastry even with edge of pan. Cut 3/4-inch circles from rolled pastry-use center of doughnut cutter or thimble. Overlap circles on slightly moistened rim; press down lightly. (For one-crust pies only.)

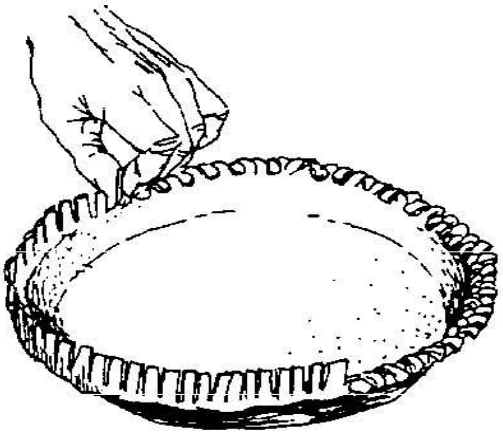


Cornucopia: Allow 1-inch additional overhang; do not turn under or make rim. With scissors, cut overhang into triangles at 1-inch intervals. Roll points in toward rim. Seal "cornucopias" on inner edge. (For one-crust pies only.)

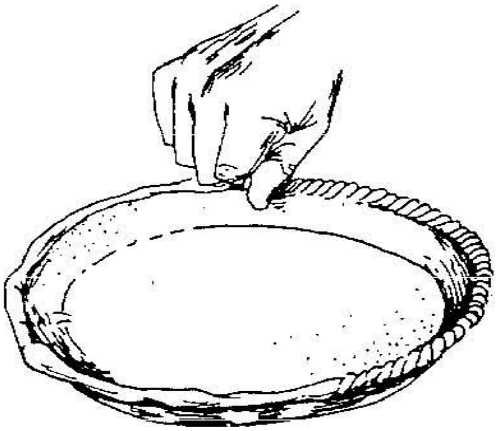
Figure 8-4, Making crusts for one-crust pies.



Polka Dot: Allow 1/2-inch overhang; fold under and form a rim. Press rounded end of bottle opener firmly into pastry rim. Repeat around outside rim.



Leaf: Form a high standing rim. With scissors, clip rim at an angle every 1/4-inch. Press down clipped rim alternatively to right and left.



Rope: Form a standing rim. Place thumb on pastry rim at an angle; press pastry against thumb with knuckle of index finger.

Fork Scalloped: Form standing rim. Mark edges every 3/4-inch as for fluted edge. Flatten rim to edge pan between points with floured fork.

Figure 8-4., Making crusts for one-crust pies (cont'd).

After baking the shell, you should fill with the appropriate filling. Examples are coconut cream and chocolate cream pies.

Double Crust Pies—The bottom crust is filled with pie filling. The piecrust rim is brushed with water. Before placing the top crust on the filling, several small slits should be made in the top crust to allow steam to escape. The top crust should be folded in half for ease in handling, then placed on the pie filling. Unfold it carefully to prevent the crust from tearing. The edges of the piecrust are pressed lightly together. The excess dough is then trimmed. The pie may be fluted in the same manner as one-crust pies. If a finish or glue is desired, the pie top may be sprinkled lightly with sugar or brushed with pie wash. Select the pie wash that is applicable to the type of pie being prepared.

Pie Crust Variations—The AFRS has recipes for other piecrusts using graham crackers. Graham cracker crusts may be prepared from either crushed graham crackers, granulated sugar and melted butter or prepared ready-to-use graham cracker crust.

Pie Fillings

Pie fillings may contain either fruit or cream. Some pie fillings are already prepared.

Prepared Pie Fillings—Prepared pie fillings are convenient to use as they require no preparation. The required amount of filling is poured into an unbaked pie shell. Apple, blueberry, cherry and peach are the varieties available. For further information, see the AFRS cards for prepared pie fillings.

Fruit—Fruit fillings, except those using pre-gelatinized starch or canned prepared pie fillings, are cooked before being placed in an unbaked piecrust. If recipe instructions are carefully followed, the filling will be properly thickened and cut edges of the pie will ooze slightly. The pieces of fruit will look clear and distinct and the color will be bright. The AFRS gives information on ingredients used to thicken pies.

Cream Fillings—The AFRS has basic recipes for chocolate and vanilla cream pie. Cream fillings should be smooth, free from lumps and rich in appearance. The fillings should never be boiled. Boiling will cause curdling. If fruit is to be added, follow the recipe directions carefully to avoid a thin, runny filling. Follow the AFRS procedure to prevent this from occurring. Once the pie filling has been prepared, pour it into a baked piecrust and top with the desired topping.

Instant pudding mixes are available for making cream filling. They require no cooking. Available in chocolate, butterscotch and vanilla flavors, they are designed to be prepared with nonfat dry milk and water. Chocolate mousse pie is prepared from instant pudding to which whipped topping is folded in to make a rich pie filling.

Pumpkin—Pumpkin pie filling is a custard-type filling to which pumpkin and spices are added. The filling is added to the unbaked crusts and baked. Note that the pumpkin mixture for the filling should set 1 hour before adding the eggs. If not, the full amount of absorption will not take place and the filling will shrink and crack during baking.

Cream or custard fillings are highly susceptible to the formation of bacteria that cause foodborne illness. Never hold custard or cream fillings between 41°F and 135°F longer than 4 cumulative hours. Always keep cream pies refrigerated until they are served.

Lemon—The AFRS lemon pie filling recipe specifies water rather than milk as the liquid. Lemon juice is the flavoring and should be added after the filling is cooked. If the lemon juice is added while the filling is cooking, it will prevent the mixture from thickening. Prepared, canned lemon pie filling is also available. The filling is ready to use and requires no cooking unless it is to be topped with a meringue. In that case, the pie filling should be heated to 122°F before pouring it into the baked piecrust. Dehydrated lemon pie filling mix is available. When mixed with water, it is ready for filling piecrusts. Follow manufacturer's preparation instructions.

Chiffon—Lemon, pineapple and strawberry chiffon pie fillings are made easily by combining whipped topping with flavored dessert powder gelatin that has been beaten slightly after it has thickened. Well-drained fruits such as strawberries or pineapple are added. The filling is poured into a baked pie shell. Another variation of chiffon pie can be prepared by using fruit-flavored gelatin cubes of different colors mixed with whipped topping.

Other Fillings—Pecan, mincemeat and sweet potato pie fillings may be prepared for pie filling variations. These fillings are poured into unbaked pie shells and baked according to AFRS recipe directions.

Pie Toppings

Meringues, whipped cream and whipped toppings are most often used as toppings to attractively garnish cream pies.

Meringues—Meringues are generally used for topping cream or lemon pies. Meringues are made with egg whites, sugar, vanilla, flavoring and salt. They must always be baked.

Dehydrated meringue powder is made from egg albumen, powdered sugar, cornstarch, flavoring, salt, phosphates, sulfates, dextrose and stabilizers. It requires only the addition of sugar and water. Once dehydrated, it should be spread over the filling and baked in the same method used for fresh meringue.

Other Toppings—Toppings for pies maybe a slice of processed American cheese or a scoop of ice cream to top apple pies. The AFRS has a large selection of frostings, fillings and toppings.

Cutting and Serving

Pies should be cut into eight serving-size portions. Pies may be placed on individual plates for self-service from the dessert bar. Pies should be placed for service so that the point of the pie slice faces the front of the serving line. Turnovers, dumplings, fried pies and cobblers should be served in a similar manner as pies.

Pastry

There are several types of pastries that are included in the AFRS. These are cobblers, turnovers, dumplings and fried pies. Ready-to-use puff pastry dough, in sheets, is available. It is used with fruit fillings as a dessert. It can also be used with meat fillings and served as an entreé.

Cobblers—Cobblers are pies that are baked in sheet pans instead of pie pans. Cobblers maybe varied by topping the filling with pie dough cut into small dollar-sized circles or other shapes, or by using a streusel topping. Cobbler-style pies take less preparation time than the regular type of pies. Directions for preparing cobblers are provided in the AFRS.

Turnovers, Dumplings and Fried Pies—Piecrust and fruit fillings are used according to the directions in the AFRS to make turnovers, fried pies and dumplings. For turnovers and fried pies, the dough is rolled into a rectangle and cut into squares, then folded over and sealed. Turnovers are folded into triangles and baked. Fried pies are usually cut into semicircles and then deep-fat fried. Dessert dumplings are formed by the four points of the rectangle being pulled up to the center and then sealed. They are served warm with a dessert sauce (such as caramel).

OTHER DESSERTS

Besides cakes and pies, there are various other types of desserts used in the GM.

Fruit Desserts

Fruit-flavored gelatins, fruit crisps and crunches, baked apples, fruit cups and fresh, canned, frozen, or dried fruit provide additional dessert variety.

Fruit Gelatin—Gelatin desserts are light, simple to prepare, colorful and economical to serve. They may be plain, fruit-flavored gelatin served with a whipped topping or a gelatin and fruit mixture. Available flavors are cherry, lemon, lime, orange, raspberry and strawberry. Follow the commercial directions on the container for the gelatin being used.

When adding fruit to gelatin, the juice drained from the fruit can be used for part of the water specified in the recipe. Using only the fruit juice will make the gelatin too sweet and may cause it to be too soft. The fruit should be well drained. Slice, dice, halve, or quarter the fruit before adding it to the slightly thickened gelatin. Fresh pineapple should be cooked before it is added to gelatin desserts as it contains an enzyme that will prevent gelatin from setting. Canned pineapple is a cooked product and, therefore, may be used without cooking.

Keep gelatin desserts refrigerated until served. Holding them on the serving line for long periods of time may cause them to melt. Gelatin desserts that are prepared in decorative molds can be unmolded easily by dipping the container in lukewarm water for a few seconds to loosen the gelatin from the bottom and sides. Individual portions can be cut with a sharp knife and a spatula used to lift out the portions for service. Gelatin desserts may be garnished with whipped toppings.

Fruit Crisps and Crunches—Fruit crisps and crunches are baked fruit desserts prepared from canned or dehydrated fruits (for example, apples, peaches, pineapple and red tart cherries). Crunches may be also made by using canned, prepared fruit pie fillings. Crisps and crunches are topped with mixtures such as buttered crumbs, oatmeal, oatmeal cookie mix, or cake mix. Cinnamon and nutmeg are added to cooked apple dessert crisps for flavor.

Baked Apples—Baked apples are prepared from fresh whole, unpeeled, cooking-type apples that have been cored. A cinnamon-flavored sugar and butter syrup is poured over the top before baking. The apples may be filled with a raisin nut or raisin coconut filling if desired. Serve the baked apples warm. Whipped cream, whipped topping, or a scoop of ice cream may be added just before serving.

Fruit Cups—Fresh, frozen and canned fruits can be combined to make eye-appealing desserts. Ambrosia is a fruit cup to which coconut has been added. Seasonally available melons, such as cantaloupe, watermelon, honeydew and honey ball melons, give extra variety to fruit cups.

Fresh, Canned and Frozen Fruit—Seasonally available fresh fruits and the readily available fruits such as apples, oranges, grapefruit and bananas can complete a meal when offered as dessert. They offer an alternative to weight-conscious dining patrons who want to avoid the high-calorie desserts. Canned and frozen fruits may be served as simple desserts. Fresh pineapple may be cut into pieces and served as a dessert fruit. See the section on salads for preparation.

Custards and Puddings

Custards and puddings containing milk and eggs must not be held at temperatures between 41°F to 135°F for more than 4 cumulative hours. These desserts are extremely susceptible to rapid bacteria growth that causes food poisoning. Keep them chilled until they are served.

Cream Puddings—Cream puddings may be prepared from the basic recipes or from instant dessert powder pudding mixes. Ready-to-serve pudding in chocolate and vanilla flavors is also available. Those products may be spooned into serving dishes or used as pie fillings in baked piecrust shells or graham cracker or cookie crusts. For information on puddings, see the section on cream pie fillings. Sliced bananas, orange sections, crushed pineapple, or coconut may be added for variations.

Tapioca Pudding—Tapioca pudding is similar to cream pudding except tapioca is used as the thickening agent instead of cornstarch. Tapioca pudding should not be heated to a boiling temperature. High heat causes the pudding to be thin and runny. Follow the AFRS directions. Garnishes, toppings and sauces should be chosen to complement the flavor and color of the custard or pudding.

Baked Custard—Baked custard contains milk, sugar, eggs, flavoring and salt. It is baked until the custard is firm. The custard is done if a knife slipped into the center is clean when removed. The custard should be refrigerated until it is served.

Bread Pudding—Bread puddings are economical to serve since they allow leftover bread to be used. Because of the custard base, these puddings must be kept thoroughly chilled. Chocolate chips or coconut may be added instead of raisins.

Rice Pudding—The AFRS includes recipes for both baked and creamy rice puddings. Creamy rice pudding is prepared in a similar manner as cream pudding. The rice should be cooked before it is combined with the other custard ingredients. Coconut or crushed drained pineapple and chopped maraschino cherries may be substituted for raisins. Since it is a custard, rice pudding must be continuously refrigerated.

Cake Puddings—Some cake puddings separate while baking into a layer of cake over a layer of pudding (such as chocolate cake pudding). Other types of cake puddings differ in that fruit is mixed with or placed over a cake batter before baking. Fruit cocktail pudding is an example.

Cream Puffs and Éclairs

Cream puffs are round pastries that expand while baking, becoming hollow in the center. Éclairs have the same ingredients but are oblong rather than round. Cream puffs and éclairs are made by first stirring general-purpose flour into a melted butter and boiling water mixture, then cooling the mixture slightly. Unbeaten eggs are added to the mixture a few at a time and the mixture is beaten until it is stiff and shiny. Cream puffs and éclairs should be baked immediately. During the last few minutes of baking, the oven door should be opened. This will prevent them from becoming soggy and falling when removed from the oven. Cream puffs and éclairs are filled with chilled pudding, whipped cream, or ice cream. Powdered sugar may be sprinkled on top or they may be served with chocolate sauce. Cream puffs and éclairs also may be filled with tuna, shrimp, or salmon salad mixtures, or chicken a la king.

Ice Creams

Ice cream and sherbet are popular desserts. The kinds that are used in the GM are commercially prepared ice cream and sherbet and galley-prepared soft-serve ice cream and milk shakes.

Commercially Prepared Ice Cream and Sherbet—Ice cream and sherbet are available commercially in various container sizes—bulk, slices and individual cups. Ice-cream novelties that may be procured include ice-cream bars, cones, sandwiches and fruit-flavored ices on a stick.

Soft Serve Ice Cream and Milk Shakes—Galley-prepared ice-cream mixes greatly simplify making soft-serve ice cream and milk shakes. The kinds available are dehydrated ice milk-milk shake mix, fresh liquid ice milk mix and fresh liquid milk shake mix.

Dehydrated Ice Milk-Milk Shake Mix. Soft-serve ice cream and milk shakes, chocolate and vanilla flavors, may be made from dehydrated ice milk-milk shake mix. The mixes are combined with 40°F to 60°F water using a wire whip. Once reconstituted, they are very perishable. Keep refrigerated until ready to use. The mixture should not contain any lumps because they will clog the freezer. After mixing, chill the mixture to 35°F to 40°F and pour it into the freezer. Do not add a warm mixture to the freezer. Start the dasher motor and then the refrigeration.

***NOTE**: When preparing milk shakes, the method of preparation is the same; however, the milk shake is frozen to 27°F to 30°F.*

Fresh Liquid Ice Milk Mix. Soft-serve ice cream may be prepared from fresh liquid ice milk mix that is available from local dairy contracts. The mix is available in chocolate, vanilla and fruit flavors. Fresh liquid ice milk mix is ready to use. No water is required.

Fresh Liquid Milk Shake Mix. Milk shakes in chocolate and vanilla flavors may be prepared from fresh liquid milk shake mix. This mix is intended for use in milk shake mix machines, but may be prepared in a soft-serve ice-cream machine if the other is not available. A slightly slushier product will be made.

Both of the fresh, liquid mixes are perishable and should be kept chilled at all times.

For cleaning soft-serve and milk shake machines, check the manufacturer's instructions.

Yogurt

Plain and fruit-flavored yogurts are available. A vanilla or fruit-flavored yogurt mix for use with the soft-serve ice-cream machine is also available. See AFRS card for preparation instructions.

SAUCES

Some fruit sauces served with desserts such as cake, puddings and ice cream are thickened with cornstarch or pre-gelatinized starch. Prepared pie fillings that are thinned with water can be used to make quick and easy fruit sauce toppings for ice cream.

Chocolate sauce is prepared by combining milk with a cooked paste made of sugar, cocoa, salt and water and then cooked. Butter and flavoring are then added. These sauces may be served over ice cream or plain cake cut into serving portions.

Vanilla sauce is served with cakes, puddings and pastry dumplings. Cornstarch or pre-gelatinized starch is used for thickening. When cornstarch is used, the sauces should be cooked to thicken and to eliminate the raw starch taste.

Cherry jubilee sauce, a sauce prepared from dark sweet, pitted cherries, cornstarch, sugar imitation brandy flavoring and water, may be prepared to serve warm over vanilla ice cream or for serving cold over vanilla pudding or plain, unfrosted yellow or white cakes.

A variety of flavorings such as imitation wild cherry, black walnut, brandy, rum, almond, orange, lemon and banana are available for use in dessert toppings and sauces. They may be substituted for vanilla flavoring in vanilla sauce and used as specified in other recipes.

SUMMARY

In this chapter, we identified the different cooking and baking terms, functions of food ingredients, bread make up process, quick bread and yeast bread, pie ingredients, the pie make-up process and other desserts and sauces.

CHAPTER 9

STATEROOM/WARDROOM SERVICE

***Learning Objectives**: Upon completion of this chapter, you should be able to do the following:*

— Distinguish between the different types of officer messes afloat

— Describe the different services that are performed while caring for staterooms.

— Discuss the four food serving styles.

— Discuss the importance of the "Buck".

— Discuss the importance of correctly setting a wardroom table.

— Discuss the Importance of utilizing a sneeze shield

— Set-up a table for service, formal and informal.

INTRODUCTION

This chapter discusses the different types and service required for Officer Messes Afloat, it also discusses procedures used in Wardroom Service aboard ships.

OFFICERS' QUARTERS AFLOAT

The Commander, Naval Supply Systems Command (COMNAVSUPSYSCOM) is responsible for providing administrative and technical direction for officers' quarters afloat. To discharge this responsibility, COMNAVSUPSYSCOM issues directives and letters of guidance and provides training and aid to operating personnel.

TYPES

Quarters on board ships are of several different types. Flag Officers and Commanding Officers (COs) have their own mess and their quarters. They are normally larger and more like bedrooms than other officer quarters found on board ships.

Flag Officer, Commanding Officer (CO) and Executive Officer (XO)

Quarters include a stateroom and private head facilities.

Staterooms

Staterooms are berthing spaces provided for officers aboard ship.

ORGANIZATION

The mess caterer or, if there is no caterer, the mess treasurer is usually responsible to the mess president for the service, care and maintenance of quarters afloat.

Mess Caterer

The mess caterer is responsible for the efficient management of the officers' staterooms, including maintenance and repair of government-owned equipment and stateroom facilities. The caterer is also responsible for providing linen, laundry and cleaning services.

Leading Culinary Petty Officer

The senior enlisted person assigned to the wardroom mess is the leading mess petty officer. The leading mess petty officer is responsible to the mess caterer for both the supervision of foodservice and stateroom service personnel. He or she also oversees the details of the daily wardroom mess operation.

Stateroom Supervisor

Ship's size often dictates whether or not a stateroom supervisor is assigned. If assigned, the stateroom supervisor is responsible to the leading mess petty officer for supervising the personnel assigned to stateroom service.

As a Culinary Specialist (CS) you may be assigned to supervise stateroom services afloat. As a supervisor, you are expected to manage and coordinate the activities of personnel who provide stateroom services. Your duties may include but are not limited to the following:

Planning the work schedule

CS personnel should always bear in mind the following items:

- Develop efficient methods for cleaning and maintaining the staterooms using limited cleaning equipment and supplies available
- Practice proper inventory management regarding linen, supplies and cleaning equipment
- Be familiar with the location of each stateroom, the easiest route to the ship's laundry and laundry pickup schedules.

Other Assigned Personnel

CS personnel are responsible for performing functions associated with the management and operation of officers' quarters afloat. However, a rotational pool of enlisted personnel in paygrades E-1 through E-3 may be provided to aid the CSs in providing maintenance, cleaning and other services.

When assigned, the rotational pool is under the supervision of a CS and may perform the following duties:

- Daily bed-making services and weekly bed linen changing for the CO, XO, unit commander and officers in paygrades O-5 and above
- Maintenance and cleaning of all staterooms and associated living spaces
- Cleaning of passageways and heads in officers' quarters
- Making sure officers' beds have clean linen and soiled hand and bath towels are changed twice weekly, airing bedding, turning mattresses, vacuuming bunks, washing paintwork and having chair covers and bedspreads dry-cleaned quarterly
- Assisting CS personnel in the cleaning and maintenance of foodservice spaces including wardroom service and food preparation.

AFLOAT STATEROOM SERVICE

Basic officer stateroom maintenance service, which includes sweeping, dusting, sink cleaning, painting, laundry services and care of private effects, is explained next.

STATEROOM CARE

The work required in the maintenance of the wardroom and staterooms is not physically hard. However, it does require a sense of orderliness and attention to detail. It also requires an understanding of the important role played by CS personnel in support of the ship and the Navy. The specialized support provided by the CS rating within the wardroom/stateroom areas is as necessary to the Navy as specialization provided in the weapons and engineering areas.

Staterooms must be thoroughly cleaned. This includes furnishings, ledges, corners and bulkheads. The same cleanliness is required for heads, showers, passageways and vestibules.

Access to Staterooms

The wardroom and staterooms are officers' country. The mess personnel duties and their continuous presence in officers' country produce an especially close relationship between the enlisted personnel and mess officers. Successful wardroom operation depends upon the mutual trust and respect of this relationship. This trust results from high levels of personal honesty and integrity. The wardroom and stateroom areas are out of bounds to personnel other than mess members and mess personnel. The only exception may be for official business related to those spaces.

Care of Private Property

One important rule to follow in cleaning staterooms is to avoid disturbing anything of a private nature that has been left lying about. Occasionally, officers rush off leaving letters, papers, money, or other valuables in sight. These instances should be reported at once to the officer, the wardroom leading CS, or the stateroom supervisor. Furthermore, papers, books, or letters should not be examined if left lying around. These may concern official Navy matters or the officer's personal affairs. In either case, they are to be treated as private property. If valuables or other private items must be removed when cleaning, you should make sure they are put back where they were found.

Cleaning of Staterooms Personal Service

Daily cleaning is necessary, but the extent to which spaces are cleaned may vary with particular circumstances. More uniform cleaning can be done by using a cleaning bill. An example of a stateroom cleaning bill follows:

DAILY

- Clean washbasin, mirror, soap container and toothbrush holders
- Make up beds for officers 0-5 and above
- Sweep and mop deck or vacuum carpet
- Empty wastebaskets
- Dust all furniture.

WEEKLY

- Wash paintwork

- Polish brightwork
- Clean electric fans and wipe down light fixtures
- Replace soiled hand and bath towels and replace with clean ones as scheduled
- Deliver and pick up officers' laundry as scheduled
- Replace stripped linens with fresh clean ones. Leave linens on top of beds (0-4 and below only), as scheduled
- Scrub and wax deck or spot-check carpet and remove stains as scheduled
- Clean air-conditioning filters and screens
- Hold general field day for certain staterooms as scheduled. Stand by for inspection.

CLEAN AS SCHEDULED

- Turn the mattress over and vacuum underneath it on a monthly basis, preferably during linen change
- Send draperies, curtains, chair covers and bedspreads for dry cleaning (quarterly)
- Shampoo carpets (quarterly)

The following services are considered of a personal nature and are the sole responsibility of individual officers:

- Bed making and bed linen changing except for 0-5 and above
- Care, maintenance and orderliness of personal effects that include military uniforms, uniform accessories and shoes
- Sorting and storage of personal laundry.

HABITABILITY

Officers' quarters aboard ship (staterooms) should present maximum habitability. COs require the highest standards of service and sanitation in the ship's staterooms. There is no ship so lacking in facilities, equipment, or personnel that minimum standards cannot be met. Careful use of supplies and overhaul funds on allowed items should be exercised within the limitations of funding. This will achieve the maximum level of habitability.

Care of Heads and Showers

An example of a cleaning bill for stateroom heads and showers follows:

DAILY

- Clean washbasins and wipe down mirrors
- Refill soap and towel dispensers
- Clean utility sink and storage area
- Wipe down shower curtains
- Scrub down shower stalls

- Wipe down glass doors or stainless steel doors
- Scrub rubber mats and air dry
- Scrub, clean and disinfect/sanitize urinals and commodes (use rubber gloves)
- Wipe down partitions or dividers
- Sweep and swab deck with hot soapy water and disinfectant
- Replenish toilet paper
- Empty trash can
- Clean and neatly store all cleaning gear in locker.

WEEKLY

- Scrub down bulkhead
- Clean overhead and light fixtures
- Scrub down shower curtains; replace as required
- De-scale urinals and commodes
- Wipe down and polish stainless steel and all other brightwork
- Sweep, swab and scrub deck with hot soapy water and disinfectant.

CLEAN AS SCHEDULED

- Replace burned-out bulbs as required
- Replace missing curtain hooks and rubber mats
- Check for water leaks; cold and hot water.

Passageways and Vestibules

Passageways and vestibules are also important parts of the responsibilities of CSs and rotational pool personnel and must be incorporated in both the daily and weekly schedules. An example of a passageway and vestibule cleaning bill follows:

DAILY

- Sweep down ladders; vacuum if necessary
- Sweep, swab and buff passageways and vestibule decks
- Wipe down ladder handrails with hot soapy water
- Clean around deck combing or hatch openings
- Check angle irons and ledges for gear adrift
- Clean scuttlebutt.

WEEKLY

- Spot-check bulkheads and scrub down as required

- Sweep, swab, wax and buff decks
- Dust overhead, light fixtures and air vents
- Clean baseboards and make sure all corners are completely cleaned
- Scrub down ladders and dust guards with hot soapy water
- Clean knife edges of hatches and ports
- Polish brightwork as scheduled.

CLEAN AS SCHEDULED

- Strip wax once every 2 weeks or as scheduled
- Check nonskid deck treads; replace as required
- Check for burned-out bulbs and replace as required
- Check quarterly for preservation and paint as required.

Carpet Care

Overall safety factors and low maintenance costs make carpeting a far more desirable and flexible environmental control material than any hard surface material that performs only a single function.

PREVENTIVE MAINTENANCE

Maintenance time and costs can be extremely reduced and a good overall appearance of carpets can be maintained by eliminating soil and dirt before they are tracked into staterooms. Mats placed outside on inside entryways will eliminate most of the soil from shoes before it can be tracked onto the carpet. Critical high traffic areas, such as hallways and entrance doors, take the brunt of soiling. Frequent vacuuming and preventive maintenance in the high traffic areas will reduce the amount of time required to maintain these areas.

MAINTENANCE PROGRAM

Carpet maintenance is directly related to the amount of traffic in the area.

Daily. Clean with vacuum cleaner along all traffic patterns. It is extremely important to keep carpets as free as possible of hose, sandy, gritty soil. Remove spots and stains as they occur, if possible.

Weekly. The pile brush combines a brushing and vacuuming action. It should be used at least once a week in addition to the regular cleaning and vacuuming. Proper shampooing procedures require the use of a neutral, synthetic detergent that is specifically designed for cleaning carpets. First, pile brush the carpet against the lay of the pile, then vacuum the carpet thoroughly.

During the actual shampooing, all furniture should be removed. Shampoo the carpet in circular strokes, with a uniform application of suds. After the shampooing, spot-clean any stains that remain. Following this, give the pile a finishing operation by hand-napping. Normally, drying takes 6 to 8 hours. In areas of traffic that must be used before the carpet is thoroughly dry, non-staining paper should be placed on the carpet to prevent tracking soil onto the fabric. As a final operation, vacuum the carpet on the following day to remove any fluff and lint loosened by the shampooing process.

Spotting Program—A separate spot-cleaning program should be established, especially for areas where accidental spillage occurs at a higher rate. There are many excellent commercial spot-

removal kits available for this type of use. Spills should be attended to as soon as possible and never left for more than a day.

Dust and Dirt—Carpets are cleaned primarily to remove soil, to try to restore the original color, to lengthen wear life by the removal of gritty soil and to discourage mildew and other unsightly damages. A good carpet care program will save time and money.

Low Maintenance—Carpeting requires only about half as much time to maintain as hard-surfaced decks.

TYPES OF WARDROOM MEAL SERVICE

General—Normally family style is the most popular meal service provided in wardroom messes afloat. Specific wardroom design, number of food service personnel and the desires of the mess president and the commanding officer, in many cases determine the type of service to be used. However, regardless of which style of service is used, it must be executed properly. The success of the best written menu and preparation efforts depend on how the food is served. There is a proper sequence to be observed in good food service. Good food service begins before the seating of wardroom members. It depends very much on advanced planning and proper preparation.

Two Basic Meal Styles—The two basic meal styles are "formal" and "informal," with variation within each style. Different aspects of these styles will be discussed along with the peculiarities of each.

Formal Service. Formal meal service includes the semi-formal style and the formal style of "French" service. This type of meal requires more advanced planning, detailed preparation and elaborate tableware than any of the other styles. For these reasons, this style is usually conducted only in commanding and flag officers' messes and is normally used for occasions involving the entertainment of special guests. The reference rules for this meal are covered more completely in the reference book entitled "Service Etiquette." Interpretation and application of these rules or guidelines for any officers' mess afloat will usually be done by the senior CS in association with the mess president and/or treasurer.

Semi-Formal Service**.** This modification of the formal style service is used much more often. For example, it may be used daily in commanding and flag officers' messes if there are no guests. The preparation and service of this meal are not as elaborate as the formal style and require less time, facilities and personnel. The individual place settings are similar to those used for the informal meal styles. Few center items are used other than salt and pepper shakers, sugar bowls and creamers.

The method of serving meal items is what distinguishes semi-formal from informal meal styles. In the semi-formal style, each food item is arranged on a separate serving dish in the pantry and then offered to each diner. Beginning with the meat or main course, each course is carried into the wardroom separately. The courses are presented to each diner in turn, starting with the head of the table, the senior guest, or the individual designated by a buck. Each diner selects desired items from the serving dishes and places them on his/her plate while the serving dish is held. Serving dishes are returned to the pantry after their contents have been offered to all the diners.

Informal Service—Several types of informal service are used in the typical wardroom messes. Each has its own advantages, but all are faster and more convenient to use than the formal styles. Those currently in use are called family, American, a la carte, cafeteria and buffet styles.

Family Style. For this style of service, food is arranged in serving dishes, along with the use of serving utensils. The dishes are then placed on the dining table and diners serve themselves and then pass the dishes around the table until all diners have been served. The CS replenishes serving dishes as necessary and provides beverage service. Dessert items may be brought in and placed on the

sideboard and served by the CS/rotational pool personnel when the main course items have been removed from the dining table.

American Style. This type of service is used in most restaurants. The main course plate is not part of the initial place setting. Instead, individual plates are prepared in the pantry or galley and placed before the seated diners. This form of meal service is often provided in officers' messes in medium-sized ships and is often combined with other, traditional forms of service. In American service, food is placed on plates in the galley and taken to the wardroom and served to each diner.

A la Carte (Breakfast) Style. This type of service is usually provided at breakfast. As with the American style, the main plate is not part of the initial plate setting. Instead, the diner is given a menu or breakfast order form. After the diner has decided what food he or she wants and how it is to be prepared, the order is delivered to the pantry or galley and the food is prepared as requested. It is placed on a plate and served to the diner as the American style of service.

Cafeteria Style. This is the type of service that is used aboard some larger ships (e.g., carriers, tenders). The diner does not normally serve himself/herself, rather, the diner selects the desired items and the food service attendant places them on his/her plate. For example, salads, desserts and some side dishes may be apportioned in dishes; and the diner simply takes them from the serving line. The main course, vegetables, starches and meat, are portioned onto a plate by the food server as the diner selects them.

Buffet Style (Self-Serve). Although buffet service is listed under informal style service, it may also be used on formal occasions. The requirements for formal use, as for all formal service, may be obtained from the references listed under formal meal style. For both formal and informal use, this type of service can be used when either space or serving personnel is limited and this is the preferred method of service to reduce workload. The food is attractively arranged on a sideboard or serving table and the diners serve themselves. It is customary to place silverware and other necessary dishes on the dining table so that the diners do not have to carry them.

Serving responsibilities for buffet service are fewer, but they are no less important. The buffet and dining table should be watched constantly so items are replenished before they run out; also, to remove soiled dishes immediately after use. After the diners are seated, the buffet will require constant attention so it remains attractive for latecomers or anyone desiring seconds.

When everyone has finished the main course, the main course foods should be removed from the buffet table. The dishes and used silverware should be removed from the table. If the dessert is to be served from the buffet table, the dessert and appropriate serving dishes should be arranged as soon as the main course foods are removed. Otherwise, the dessert should be served at the table.

DINING TABLE CENTER ITEMS

After setting the individual places, you should then set the dining table center items. These items include standard items that are typically used at every meal and meal-related items that may be included on the basis of menu requirements. The standard center items will always be placed on the dining table when setting up the table.

STANDARD CENTER ITEMS

Figure 9-1 shows standard center items. The descriptions of these items are as follows:

- The sugar bowl is a small, silver, oval-shaped container with a short pedestal stand and lid. It is always set with a sugar spoon

- Salt and pepper shakers may be all silver or they may be glass with silver tops. The salt should always be kept loose and dry. When placed on the dining table, both shakers should always be at least three-fourths full
- The coffee cream pitcher is similar in size and shape to the sugar bowl but has a spout and no top.

One set of these standard items is provided for every six diners. However, a set of salt and pepper shakers is provided for every four diners. The standard center items are arranged with the sugar bowl centered between the salt and pepper shakers on one side of the table and the creamer on the other side. The salt shaker should be placed on the right side toward the head of the table.

Most ships consider some type of centerpiece as standard. This centerpiece usually consists of a silver fruit bowl containing either fresh or artificial fruit for breakfast or fresh or artificial flowers for lunch or dinner. If used, centerpieces should be lined up and arranged across the tables to present a neat, attractive uniform appearance.

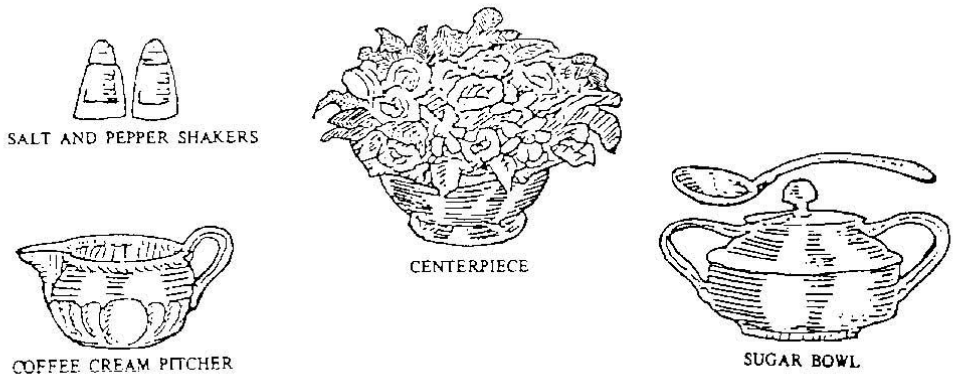


Figure 9-1.-Standard center items.

Meal-Related Center Items

Figure 9-2 shows meal-related dining table center items. These items are explained next.

Cereal cream pitcher. The cereal cream pitcher is shaped like a small beverage pitcher with a modified hourglass design. It has a handle on one side and a capacity of 16 ounces. It is set only for breakfast or brunch when cereal is to be served.

Syrup pitcher. The syrup pitcher is similar in size and shape to the coffee cream pitcher. However, the pouring spout is partially enclosed by a metal lip. It is set only for breakfast or brunch when pancakes or waffles are to be served. It is placed on a coffee cup saucer.

Silver fruit bowl. The silver fruit bowl is a large hollow bowl. It is used for serving fresh fruit for breakfast or brunch. It is often set as a centerpiece containing artificial or real fruit for breakfast or artificial or real flowers for lunch or dinner.

Bread tray. The bread tray is a rectangular silver dish with rounded ends and perforated sides. It is used primarily for breads, but it also maybe used for relishes such as carrot or celery sticks. When used for breads, an opened napkin is placed in the tray. The bread is then neatly arranged on the napkin and the edges of the napkin are folded over the bread to retain freshness and warmth.

Cruet and caster. The cruet and caster consist of two stoppered glass bottles placed on a small tray. The bottles hold oil and vinegar salad dressings when salads are served at lunch or dinner.

Butter dish. The butter dish is a small, rectangular china dish with rounded corners. It is normally used at all meals for serving butter patties. At breakfast or Sideboard brunch, it can be used for serving jam or jelly packets.

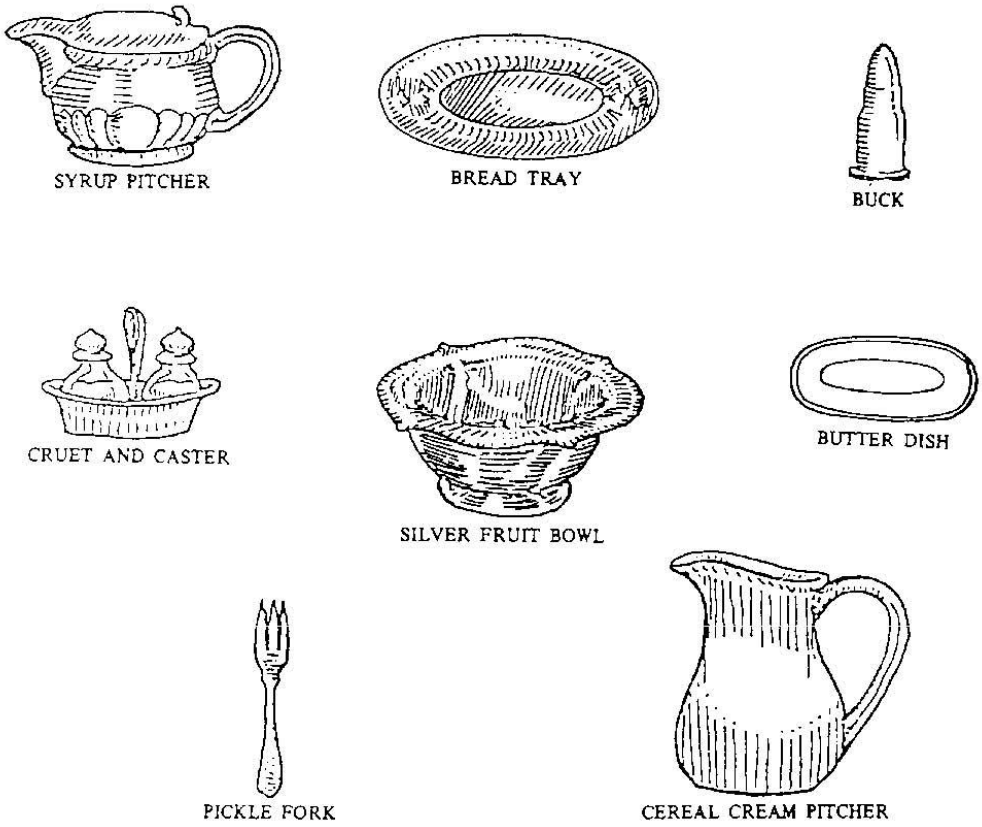


Figure 9-2.—Meal-related center items.

Pickle fork. The pickle fork is used only at lunch or dinner when pickles or other relishes are served. It is placed on the relish (bread) tray. The pickle fork has three tines and is similar in shape to the diner's oyster fork but is slightly larger.

The buck. A buck is normally a small object such as a statue, a model, or a dummy weapon round. The buck is used aboard some ships to designate which diner is to be served first. It is not used at breakfast, at brunch, or when guests are to be served.

Meal-related items are selected on the basis of menu requirements. Examine the menu and identify those menu items for which related center items are normally used, such as jellies and syrup at breakfast. Pencils are supplied for falling out order forms.

For semiformal lunch or dinner, the bread, if served, is placed on the dining table after the main course item. For all informal-style lunch or dinner meals, bread is set 5 minutes before the meal.

DINING TABLE

When assigned to wardroom duty, you are responsible for setting the table for meals. Setting a table correctly helps avoid confusion at meals and allows the table to look neat and attractive. An attractively set table contributes to the enjoyment of the meal.

Linens

Linen is handled when preparing for a meal and when securing from a meal. All linen should be examined for cleanliness and serviceability before use. When linen is stained, torn, or frayed, it is not suitable for the table. Linen in this condition should be brought to the attention of the wardroom supervisor.

Linen Placements

All linen should be in place before the wardroom tables can be set. Linen also should be placed on the sideboard and, sometimes when appropriate, the buffet table. Linen that is worn, but clean and without stains, may be used on the sideboard if it can be neatly folded so the damaged parts are hidden.

Most wardrooms have a waist-high cabinet known as the sideboard. Its storage spaces are used for storing wardroom linen and tableware. The top forms a counter for the placement of hot and cold beverage services and extra tableware in preparation for a meal.

Napkins

When cloth napkins are to be used alongside plate settings, they should be folded flat and set aside. If napkin rings are to be used, napkins should be folded, rolled and placed in the rings.

SETTING THE TABLE

Setting the dining table involves two basic tasks: setting individual place settings and setting the dining table center items. Steps for selecting and placing individual place settings and dining table center items are dependent on specific menus and styles of meal service. Variations in the procedures may recur. These variations are based on the way a specific mess maybe equipped and on the desires of the mess president and/or the wardroom supervisor. For instance, if there is a lack of a certain type of needed tableware, the wardroom supervisor should be asked to decide what item should be used as a substitute.

Setting Individual Place Settings

The dishes, silver, glasses and napkin placed in front of one person are called a cover. The number of dishes and pieces of silver necessary for a cover depends on the occasion and the menu. Everyday meals require fewer dishes and silver than formal meals. Always check the menu before setting the table. Figures 9-3, 9-4 and 9-5 are the basic breakfast or brunch cover, the basic lunch or dinner cover and the cover for an informal meal, respectively.

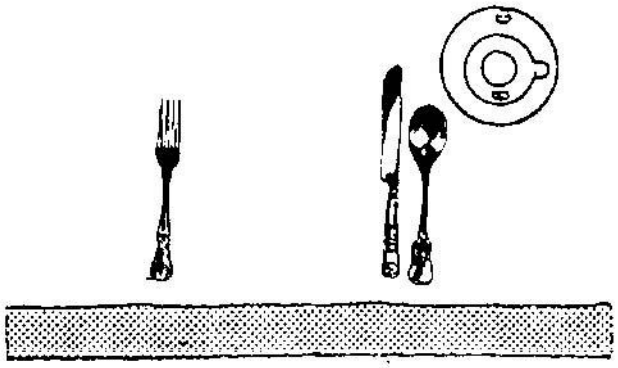


Figure 9-3, Basic breakfast or brunch cover.

Dinner or service plate. The dinner or service plate is placed directly in front of each chair. The ideal spacing of plates for family style or formal occasions is 24 inches from plate center to plate center. This is close enough to permit easy conversation and provides enough room for each diner. The dinner plate is not placed on the table when American, cafeteria, buffet, or a la carte style is used.

Silverware. Silverware is placed about 1 inch from the edge of the table and close to the plate. It is placed according to the order in which it will be used—the outermost pieces being used first. Knives are placed next to the plate on the right side with the cutting edge toward the plate. Spoons are placed to the right of the knives with the bowl up. Forks, except oyster forks, are placed on the left side of the plate. When the oyster fork is used, it goes to the right of the spoon. Usually, not more than six pieces of silverware are placed at a cover. During a formal dinner, when additional silver is required, it is brought in with the course requiring its use.

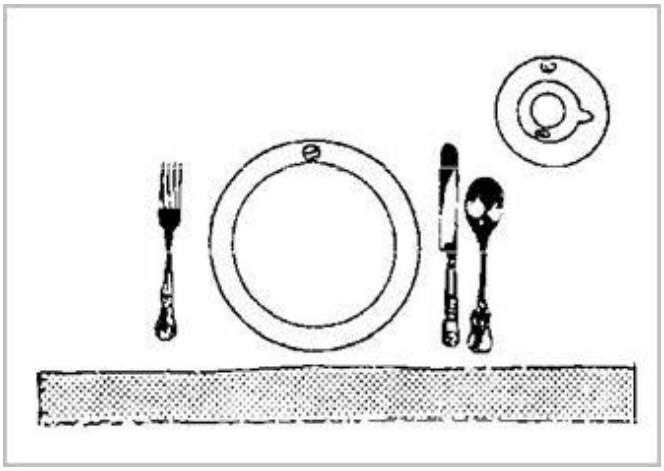


Figure 9-4, Basic lunch or dinner cover.

Bread and butter plate. The bread and butter plate, when used, is placed to the left of the dinner plate, above the points of the forks.

Beverage glasses. The water glass is placed to the right of the dinner plate above the points of the knives. The water glass is set for lunch unless another chilled beverage is to be used. It is a wide, short 10-ounce glass and is used only for water. The beverage glass is a taller, narrower 10-ounce glass. It is used for lunch or dinner when milk, iced tea, or other chilled beverages are served. The juice glass is a small 6-ounce glass. It is not set but is used to serve juice when ordered by the diner. It is used only at breakfast.

Coffee cup. The coffee cup is set upside down on the saucer and is placed to the upper right of the outer spoon.

Napkin. The napkin can be either cloth or paper. It is placed either to the left of the forks or on the dinner plate.

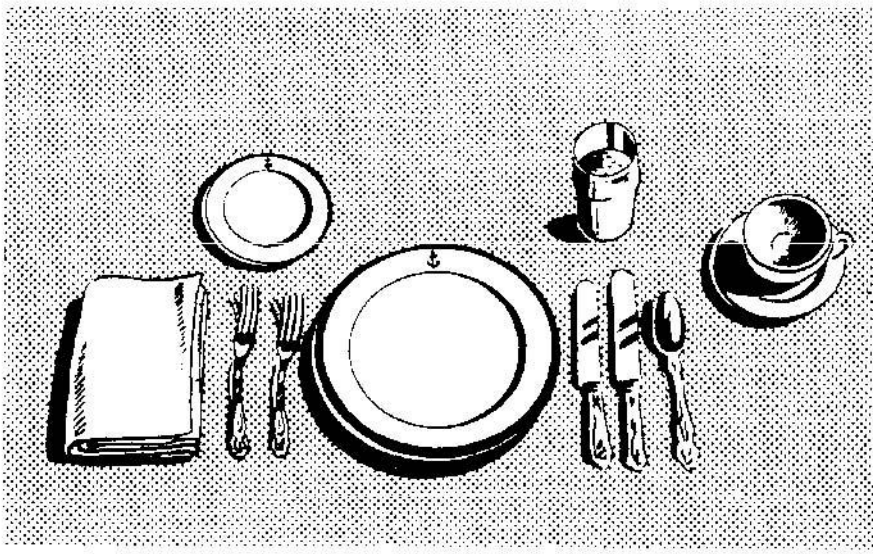


Figure 9-5.-Cover for an informal meal.

After all covers are set, check the table once again to see that all covers are alike and that nothing was omitted. Be certain that spoons are laid with bowls up and that the cutting edges of knives are turned toward the plate. Place the chairs so the front edge of the seats is just against or under the drop of the tablecloth.

Setting Place Cards

Place cards are usually used for such functions as formal or informal dinner parties when the persons attending may not know one another. Place cards are prepared to eliminate confusion. When used, the place card is laid flat on the napkin.

Setting Center Items

After setting individual places, you should then set the dining table center items. The standard center items discussed earlier in this chapter will always be placed on the dining table when setting up the table.

SETTING THE SIDEBOARD

The sideboard is normally where the hot and cold beverage services are set up for the meals. Additionally, extra tableware is placed on the sideboard.

Setting Up the Hot Beverage Service

The principal hot beverage used aboard ship is coffee. Hot tea or hot chocolate also may be used if desired by wardroom members. The hot beverage service should be set up following placement of the linen on the sideboard. The following steps explain beverage service setup.

To set up this service, you should take coffee pots from the sideboard to the pantry and obtain enough coffee for the meal. You should have one coffeepot for each 10 to 12 diners. Place the pots on the sideboard coffee warmers. Select at least one coffee pitcher for each dining table and place on the linen next to the coffee warmers. Coffee servers should be filled just before serving and should not be placed on the warmers.

To setup hot tea or chocolate, you should put hot water in a coffeepot and set it on the coffee warmer. Arrange tea serving pots next to the warmer. The number of teapots is determined by the wardroom supervisor or through experience. Tea bags or hot chocolate packets should be placed next to the serving pots.

Setting Up the Cold Beverage Service

To setup the cold beverage service, you should take serving pitchers from the sideboard to the pantry to obtain the cold beverages. Water is always made available even if another beverage is served. Cold beverages are pre-chilled and placed on the table just before announcing the meal. The pitchers should be ready on the sideboard for refills.

When fruit juices are included on the breakfast menu, a galley serving pan insert should be filled with enough ice to cover half the height of the glasses. It should then be placed on the sideboard and the juice glasses then filled to the bulge with juice and placed in the ice to cool.

Setting up Extra Tableware

The required amount of extra tableware will normally be determined by the wardroom supervisor. Extra tableware should be included for occasional breakage of china during meals and the likelihood of unexpected diners. If a second seating of diners is required, tableware should be placed on the sideboard to permit quick resetting of the dining table after the first seating has finished.

Obtain and neatly place the necessary items on the covered portion of the sideboard. Dishes and bowls may be stacked several high. Cups and glasses should not be stacked, especially during rough seas. Silverware should be arranged by type and napkins should be pre-folded and stacked near the silverware.

SETTING FOR BUFFET SERVICE

Buffet service was briefly described earlier in this chapter. However, there are unique sanitary considerations involved in the setup and operation of buffet or cafeteria-style serving lines. Open serving pans and trays provide ideal sites for growth and spread of disease-carrying organisms. Following a few simple rules can reduce the chance of infection.

Always keep hot foods at temperatures above 135°F, Discard the food within 4 hours of the beginning of preparation if these temperatures cannot be maintained.

Display only limited amounts of food on the serving line at any one time. This permits the balance of food to be kept in the pantry for temperature control. Refill serving pans and trays only as necessary.

Ensure sneeze shields are used.

The principal tasks involved in setting up the buffet serving line are presented next.

The serving line setup tasks should be done in the order listed and completed 5 minutes before serving time.

Make space for the buffet serving line. A buffet table should be located to allow CSs convenient access to the pantry for filling the serving pans. This also allows the diners to use the serving line easily without crowding from furniture or other diners.

Place the linen on a special buffet table or a selected area on the sideboard. Remove all non-essential items on the sideboard area when used to setup a buffet serving area.

Set up the chafing dish stands. Setup enough stands so there is at least one for each food item. Place them in the serving area so a diner can have ready access to them without leaning over the table. After the chafing dish pans have been set in place, put 1 inch of water into those pans that are for hot food. Sterno heating units are then placed below the center of the pans containing water. Make sure there are no flammable items placed near these units as the setup continues. Do not light the heating units at this point.

Place the sneeze shield now, if one is available. Do this in a way to make sure all food items are properly protected. Diners should still have ready access to the foods.

Determine what utensils will be needed. Then place all necessary eating utensils neatly at the beginning of the serving line. Napkins and silverware are usually placed on the dining tables. However, when there are more diners than seats, additional place settings should be kept on the sideboard. They should be placed on the dining tables after diners finish and leave, making room for additional diners. There are not always enough CSs to do the resetting. On these occasions, napkins and silverware should be placed on the serving line. They should be placed next to the china and away from the chafing dishes.

Set the decorations selected by the wardroom supervisor on the serving table. Decorations are usually artificial or real flowers arranged around the three sides of the serving area facing the diner.

SEATING ARRANGEMENTS

In the wardroom where regulations and precedence closely control seating arrangements, officers are assigned to permanent seats for daily meals. They are seated from left to right, as shown in Figure 9-6 according to rank and precedence.

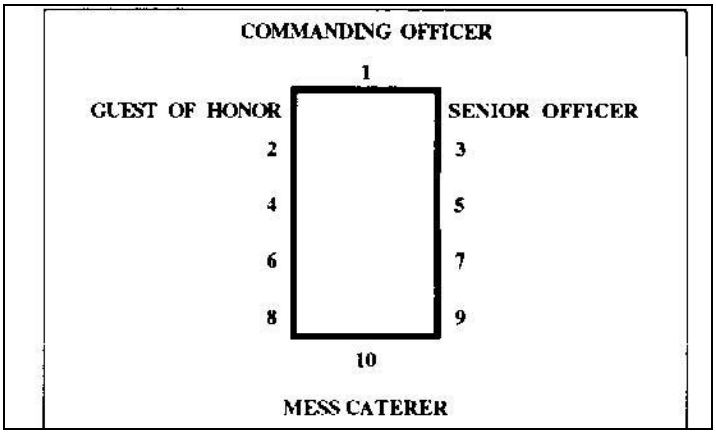


Figure 9-6, Wardroom seating.

The senior line officer in command, or in succession to command, is the president. He or she sits at the head of the table or at the head of the senior table when more than one table is used. The CO who regularly eats in the wardroom is the president. When the CO has his or her own mess, the XO is the president. The exception would be on large ships that have more than one wardroom. In this case, the senior line officer of each mess is the president. However, when the CO or other senior of-

ficer is invited for an occasional meal, this officer is considered the guest of honor. In this case, he or she is seated to the right of the mess president.

The caterer sits opposite the president. The officer next in rank sits in the first seat to the right of the president. The officer third in rank sits in the first seat to the left of the president and so on down the table. All line officers of the same grade take precedence with each other according to his or her respective dates of rank. When they have the same date of rank, their precedence is according to their lineal numbers as given in the official Navy Register.

Staff officers with the same date of rank as running mates of the line take precedence after their running mates of the line. However, they take precedence before all line and staff officers who are junior to the running mate. When officers of more than one staff corps have the same running mate, they take precedence in the following order: Medical Corps, Supply Corps, Chaplain Corps, Civil Engineering Corps, Judge Advocate General's Corps, Dental Corps, Medical Service Corps and Nurse Corps.

When more than one table is in use, the treasurer usually sits at the head of the junior table.

When officers of other service branches have the same relative grade and the same date of rank, they have precedence according to the time each has served on active duty as a commissioned officer of the United States Armed Forces. The seating arrangement changes when a guest is present. When several guests are to be present, the seating arrangements are normally worked out by the wardroom supervisor and approved by the caterer.

MEAL STYLE PROCEDURES

Meals should begin immediately after the president and the officers are seated. Prompt and courteous service adds much to the enjoyment of a meal. Serving personnel should be alert. They should not lean on the sideboard or lounge against the bulkhead when they are not busy. With proper training, serving personnel will know what their responsibilities are and how they should be met.

The president or the officer in front of whom the buck is placed is served first and then the service proceeds counterclockwise around the table.

INFORMAL MEAL SERVICE

All meals are served by family, cafeteria, American, buffet, ala carte service, or by a combination of these, as discussed earlier. Figure 9-7 shows a table setting for an informal meal.

Foods, including soups, are served from the left of the person being served. Beverages are served from the right.

Soup is normally ladled into the soup plates in the pantry and served rather than offered to the officer at the table.

The rule of thumb to follow during formal and informal service is to serve the foods from the left and remove from the right, except beverages.

To avoid overcrowding the table during family-style service, refill the water glasses as necessary instead of placing a water pitcher on the table. In other types of service such as cafeteria, a water pitcher maybe placed on the table for those who desire refills.

Coffee should always be available and served piping hot. Be careful when serving coffee and other hot beverages especially aboard ship when the ship is underway. An accidental spill can cause a painful burn.

When an officer has finished a course, remove the used dishes. Do not stack the dishes in front of the officer. With the right hand, remove the plate and silverware used during the course. When more than one plate is being removed, hold the first in the left hand and place the others on top of it.

When desserts are not picked up from the line, they should be served. Place a pitcher of hot coffee on the table for those desiring seconds.

When guests are present, some changes to the seating and serving order are necessary. Although some of these changes were mentioned earlier, bringing them together at this point will help you to recognize what routines should be changed.

The buck is not used when guests are aboard. A guest of the ship or the guest of honor sits to the right of the president and is always served first. Other guests usually sit to the right of their host officer. When no guest of honor is present and more than one officer has guests, the guest of the senior host officer is served first. In all cases, after serving the guest of honor, the serving continues from that point counterclockwise around the table. Do not skip around in order to serve all guests first.

Figure 9-7.—Wardroom table setup for an informal meal.

FORMAL SERVICE

The service required for formal meals is more elaborate than for informal meals. However, the table setting is basically the same as for informal meals. Usually four or five courses are served, but as few as three or as many as seven maybe served. All food from each course is served to all diners in prompt succession. For a formal dinner everything is served; nothing is set on the table except the salt and pepper shakers. Condiments and other seasonings are served at the proper time. A table setting for a formal dinner is shown in Figure 9-8.

Service plates are normally used at formal dinners. These are large plates that are placed on the table at the time it is set for the meal. They are not removed until replaced by the heated dinner

plate for the first hot course after the soup. They are used only because it is considered bad form for the diners not to have plates before them throughout the meal. No food is placed directly on the service plate. Instead, dishes containing the first courses of the meal are set upon the service for formal dinners in the past, they are frequently used today.

All foods are served from the left and beverages are served from the right. Dishes are removed from the right. An exception to this rule is the replacing of silverware. These pieces of silverware that are placed to the right of the place plate are replaced from the right. In this way it is not necessary to reach in front of the diner.

When the meal being served uses the table setting pictured in Figure 9-9, the following order of service would be observed.

As soon as the members and their guests are seated, the first course is served.

When all have finished the course, it is removed with the used silverware. The soup course is served next.

Figure 9-8, T able set for a formal dinner.

When all have finished the soup course, the soup plate, service plate and soup spoon are removed. The heated dinner plate replaces the service plate for the main course. The food is brought in on a platter or in serving dishes. The food is presented to the guest who is seated to the right of the host. The service then proceeds counterclockwise around the table.

Upon completion of the main course, the dinner plate and used silverware are removed. The salad plate is then put in its place. To provide faster service, the salad is usually arranged on the salad plate before it is brought in.

When all have finished their salads, the salad plate and silverware are removed. At this point, the only items remaining from the original setting are the water and wine glasses. Before the dessert is served, the crumbs, if any, should be brushed off the table with a folded napkin and tray. The dessert course with appropriate silverware is then placed before the diners.

Coffee is served with the dessert course or following it. If cups are placed on the table and coffee offered to those who want it, service is from the right.

It is customary not to smoke at formal dinners until after the coffee or demitasse has been served.

SERVING BEVERAGES

The serving of beverages was discussed earlier; however, four general guidelines and several specific procedures for serving beverages will now be explained.

Formal Beverage Service

Since the formal style of service is quite elaborate, different beverages may accompany each course and considerable guidance is needed for this to be done correctly. Guidance should be obtained from the wardroom supervisor and from other references.

Informal Beverage Service

The first guideline is that beverages are to be served from the diner's right if possible. Otherwise, check with the wardroom supervisor about how to serve the beverages in a way that disturbs the least number of diners.

The second guideline is that the server should never lift the diners' glasses or cups from the dining table to refill them. Rather, he or she should pour the beverage into them while they are on the table. If the cup or glass is not conveniently placed for service, carefully move it to a better location. If it cannot be reached, politely ask the diner to move it.

The third guideline is that the order of service for beverages is the same as that for the serving of foods.

The fourth guideline is not to fill serving pitchers to the top when used for filling glasses or cups at the dining table. A third pitcher is difficult to handle and feels quite heavy after a while. Therefore, pitchers should be filled between one-half and two-thirds full.

Finally, you must remember that each wardroom mess may have certain rules for serving beverages. The wardroom supervisor should be asked about these rules.

AFTER THE MEAL

You should immediately restore the wardroom to its pre-meal condition as soon as possible after the meal. Some helpful suggestions are as follows:

- Clear the table as soon as all officers have finished eating and have left the table
- Remove all meal items from the sideboard and return all dishes and silverware to the pantry for washing
- Refill the salt and pepper shakers as needed and store them in the pantry
- Remove buffet serving line items
- Inspect the napkins and place the soiled ones in the laundry. Refold those suitable for reuse and replace them in their respective napkin rings (when they are used) and store in the napkin storage area. Single-service paper napkins are being used in many private messes for regular meals and cloth napkins are used only for more formal occasions
- Brush the crumbs from the tablecloth. Be careful not to rub food particles into the fabric

- Shake the cloth out lightly and refold it along its original creases. Reroll or refold the silence pad as appropriate and store it with the tablecloth
- Clean tables, sideboard and chairs
- Replace the table cover
- Vacuum and sweep the deck of the wardroom.

SETTING UP FOR SPECIAL EVENTS

Navy commands traditionally sponsor events and ceremonies to acknowledge noteworthy accomplishments and achievements of Navy personnel. Command functions recognizing personnel promotions, reenlistments, retirements, command milestones, changes of command and other similar events are vital to morale and tradition. These events usually include a reception which provides light refreshments of some variety.

As a CS, you will probably get tasked to provide your in-rate skill to help plan and prepare for the event, regardless of the occasion. This is especially so if food is involved. For example, you may be asked to decorate a special cake for the event. You may be tasked to prepare a special menu, which includes hors d'oeuvres and refreshments.

Some planning factors you should consider are theme determined by the occasion or event being planned and the number of guests that will be present. You also should consider the season and time of day. Arrange for indoor facilities if it is expected to rain or to be cold.

You should make sure the facility chosen is available when needed and that it includes the necessary space or capacity. You should inquire into the availability of all needed supplies and needed capable personnel.

Coordinate with other activities on the base to make sure other events are not scheduled that will conflict with yours.

You can avoid last-minute confusion and a delay by preparing a master plan after the event has been planned in detail. Review this plan with all personnel who will be involved with the preparation and service. During the review, give personnel specific instructions on all assigned tasks. After the review, post the master plan where involved personnel can refer to it.

Check all necessity items of equipment to make sure they are functioning properly. The person in charge should check on chairs tables, podiums and so on to make sure an adequate number is available on the scheduled date.

SUMMARY

In this chapter we discussed the different types of officer messes afloat, different services that are performed while caring for staterooms, the four food serving styles, the importance of the buck, the correctly setting a wardroom table, the importance of the sneeze shield and formal and informal table service.

CHAPTER 10

FIELD MESSES AND BATTLE FEEDING

***LEARNING OBJECTIVES**: Upon completion of this chapter, you should be able to do the following:*

— Understand the different types of water sources for field messes and their regulations.

— Determine how to properly dispose of all garbage.

— Understand the proper procedure for battle feeding.

— Define the different types of pests and how to be rid of them.

INTRODUCTION

Naturally, you want the best available site for your field kitchen. The general area in which personnel will be fed is normally determined by the shore party commander. You, the Culinary Specialist (CS), may have to recommend the selection of a particular site.

PLANNING THE LOCATION

There are several details to look for when you pick a site. Figure 10-1 lists the characteristics of a good field site. It also explains why these characteristics are important.

CHARACTERTICS	IMPORTANCE
Good Natural Cover	Shields troops from enemy aerial observation Protects against sun, heat, and cold winds
Good Access Roads	Lets Supply Trucks move freely
High and Dry Ground near a Protected Slope	Ensures good drainage and protects from wind
Enough Space	Eliminates crowding of the troops and facilities Spreading out the equipment so personnel can Work efficiently
Near source of potable water	Used in preparation of food (water point) and beverages
Sandy and Gravelly Soil	Lets excess water seep away and helps soakage pits and trenches work well.

Figure 10-1, Characteristics of a good field site.

Type of Terrain

If there is danger of bombing or other enemy action, select a location that provides good natural cover and is well shielded from observation.

High, dry ground near a slope that provides good drainage is desirable. A good water supply should be nearby, with an access road for kitchen traffic only, if possible, your galley should be at the proper distance away from the heads.

Water Supply

You should regard all water in the field as contaminated until bacterial analysis reveals it to be potable. It may become contaminated during distribution and storage. Consider all untreated water unsafe until a medical representative approves it for use. During the initial phase of amphibious operations, each unit may carry its own water or depend on a local supply. The local supply of water must be disinfected and placed in sterilized lyster bags (36-gallon canvas bag) or canteens.

The responsibility for the adequacy and safety of the water under these conditions normally falls largely on the unit medical officer. However, you should be familiar with Chapter 5, "Water Supply Ashore," of the Manual of Naval Preventive Medicine, NAVMED P-5010. This chapter discusses in detail the following: water supplies, sources of water, water analysis, standards and purification of water, and the Standard organization and Regulations of the U.S. Navy. Remember that none of the methods of disinfecting water contained in these publications destroys radioactive substances or chemical poisons.

Groundwater—Groundwater from springs or wells is usually better than surface water. When you use water from a ground source, be sure it is a safe 100 feet or more from sources of contamination IAW NAVMED P-5010 Chapter 9. Some sources of contamination are heads, septic tanks, and cesspools. In limestone ground formations, the distance may need to be much greater. Wells and springs should be constructed to exclude surface water and high-groundwater infiltration. Well and spring sites should not be subject to flooding.

Surface Water—Surface water is water from rivers, lakes, streams, and ponds. When you must use water from a surface source, take it from a point well above and away from sewer outlets. Avoid places where refuse drains into a river, stream, or lake, and oily areas where wastes and drainage may make the water unpalatable or unfit for use. Always choose the clearest water possible; the clearer the water, the easier it is to disinfect and the better its appearance will be. Clearness, however, is no guarantee of safety. All surface water must be treated.

Clean water receptacles daily with boiling water and rinse with a solution of potassium permanganate (one-third of a teaspoonful of potassium permanganate to 1 gallon of water). You also can use a solution of chlorinated lime and water for this purpose (1 part lime to 1,000 parts water).

PLANNING the KITCHEN LAYOUT

A kitchen layout shows you where to place waste disposal facilities. It shows a smooth traffic flow through the serving line and mess kit laundry line. A smooth traffic flow allows the troops to get away from the area easily if they must move fast.

Make sure all latrines are at least 100 feet from the nearest natural water source and at least 100 yards from foodservice areas.

A layout for a rear area feeding situation is shown in Figure 10-2.

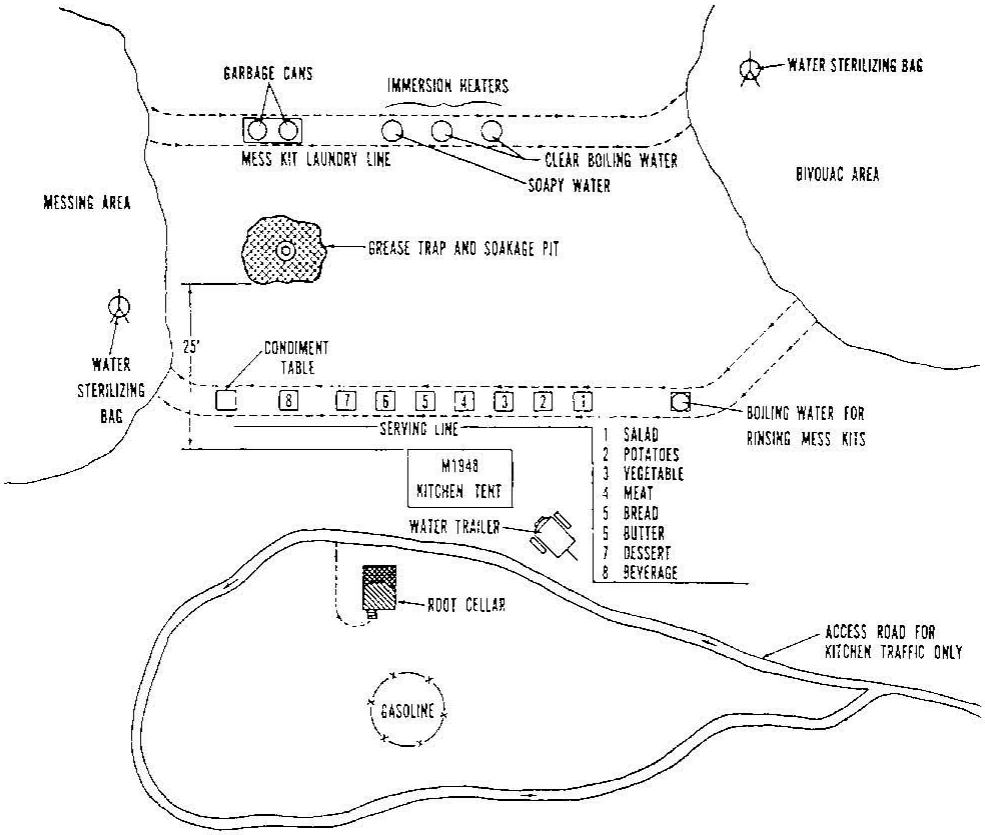


Figure 10-2, Rear area layout for field feeding.

Garbage Disposal

Garbage is best disposed of by burying or burning. To bury garbage, dig a trench 4-feet deep or more. Dump the garbage into the pit, packing it down in layers. Then cover the exposed layer with a few inches of dirt each day. When you abandon the garbage site, cover it with a minimum of 2 feet of mounded earth.

To incinerate garbage, you must first remove all excess moisture. The cross-trench incinerator (Figure 10-3) provides one of the best methods of burning garbage. To construct such a trench, dig two trenches 8 feet long, 1 foot wide, and 1 foot deep, that cross at their centers. The bottom of each trench should taper up to the level of the ground toward the ends. A grate made of a piece of scrap iron or pipe about 24 inches long is built over the centers. At the intersection of the trenches, build a coal or wood fire. When the fire has become hot enough, add rubbish or drained garbage as fuel. This incinerator functions best if three of the four sides of the trenches are blocked off, with the open side facing into the wind.

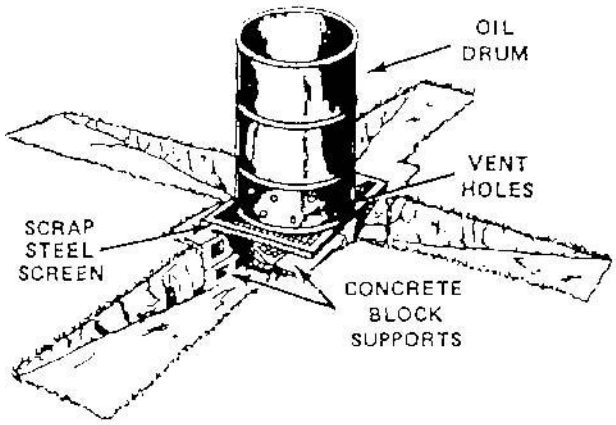


Figure 10-3, Cross-trench incinerates.

This type of cross-trench fire can be used for cooking as well as incinerating. Two cross-trenches provide enough cooking facilities to prepare meals for 100 people and six of them provide enough cooking facilities to prepare meals for 500 people.

To dispose of cans, you can wash them and use them as substitutes for cooking and eating utensils. You also can open both ends, flatten them, and bury them with the garbage. Glass jars also can be used as substitute eating utensils. When disposing of glass jars, break them up and bury them with the garbage.

Liquid wastes, such as grease, may be burned or buried with the garbage. The exception is any usable grease that can be used for cooking. Other wastes are best disposed of in the soakage pit This pit should be at a minimum of 25 feet from the kitchen area.

Pest Control

Sanitary precautions include measures to eliminate pests and prevent their breeding. The two most important types of pests for you to control are flies and rodents.

Flies - In areas where flies are present in large numbers, special care must be taken. The housefly breeds in excrement of human beings and animals as well as decomposing vegetable and animal matter. Disease organisms are carried on the feet of the fly to food and utensils. The fly takes only liquid foods and regurgitates to dissolve solids. This process causes further contamination.

Extreme care should be taken to prevent access of flies to food utensils, kitchens, and feeding areas. In a permanent camp, all areas that attract flies should be well screened. It should be standard operating procedure that the galley be screened before hot food is prepared in it. Screens should have a mesh of 18 wires to the inch (18 mesh), which also keeps out mosquitoes. In a semi-permanent camp, screening may be impractical; so, dependence must be placed upon cleanliness and insect proof containers.

When there is no metal screening available, mosquito netting, target cloth, or similar material may be used to fly-proof tents, galleys, and storage areas. Leaking screens (especially cracks around the screen door) frequently convert a building into a flytrap; that is, flies can enter the building but are unable to exit. Screen doors should be made to open outward and should be in direct sunlight, when practical. Fly breeding in human excreta is particularly dangerous; thus, whenever possible, latrines should be carefully fly-proofed.

The substances that may be used to kill the adult fly are often extremely poisonous. Thus, the use of these substances is the responsibility of the medical officer, as is the use of measures to pre-

vent breeding of flies. However, it is up to you to keep flies off the food in the galley and feeding areas. When flies are present, food servers should keep covers on serving containers except when they are actually placing food on trays.

Use traps or flyswatters freely. Sticky flypaper can be made by heating castor oil (five parts by weight) and powdered resin (eight parts) until the resin is dissolved Do not boil this solution. Apply it to glazed paper while it is still hot or paint it on iron hoops or wire strands. Wires so painted should be cleaned and recoated every 2 or 3 days.

Rodents- The rodent is an ever-present menace to operations in the field. Rodents such as rats, mice, and ground squirrels are reservoirs for plague, endemic typhus, tularemia, and many other debilitating diseases. When operations become more stable and semi-permanent or permanent camps are established, the additional hazard of the destruction of material must be considered. The distribution of rodents may be considered universal. Therefore, the problem of their control is encountered during operation in any geographical location.

Rodent control is the responsibility of the medical officer, but the proper handling of food and the prompt disposal of trash and garbage are essential and lie within your domain. Food supplies should be stored on elevated platforms. If possible, all food stores should be packaged in rat-proof containers. When buildings are used, all doors should be self-closing and tight-fitting. All other openings in excess of 1/2 inch should be closed with material resistant to gnawing rodents or screened with 1/2-inch mesh hardware cloth. Chapter 6 of the NAVMED P-5010 has additional information on the destruction of rodents.

For further information on field messing, dishwashing and sanitation, refer to the Manual of Naval Preventive Medicine, NAVMED P-5010, chapter 9, and the Standard Organization and Regulations of the U.S. Navy, OPNAVINST 3120.32.(series) The contents of these publications will aid you in combating health hazards that are ever-present in these areas.

FIELD KITCHEN EQUIPMENT

Refer to the diagram on Mobile Field Kitchens website.

General—The Damage Control Assistant has responsibility for the Afloat battle feeding plan. The Base Disaster Preparedness Plan contains the information on battle feeding for Ashore.

Feeding on Station—Distribution of food to battle station lockers allows availability for battle feeding. Food that does not require galley preparation or semi-perishable food distributed in this manner requires constant checking. This checking provides periodic rotation of food items to prevent spoilage, misuse, or theft. The availability of food carriers, racks, trays, and large coffee pots should support battle feeding needs.

Battle Food Preparation—Battle food preparation will depend on whether the galley is in operation and Culinary Specialists are available. If the galley or personnel are not available, the meal-ready-to-eat rations may be used and supplemented with hot or cold drinks. If limited galley food service is available, plan menu items such as sandwiches, fresh or canned fruit, hot entrées, such as canned beef stew, chili con carne, or easy to prepare recipes and a hot or cold drink for preparation and serving.

Galley Feeding—When personnel are relieved from battle stations, they should go to the galley or to other auxiliary feeding stations for hot food. Various auxiliary feeding stations will be set up when situations do not allow access to the galley.

Officers in Battle Situations—Officers eating meals at the general mess during battle feeding situations will pay regular meal rates in accordance with NAVSUP Notice 7330. Afloat units sell officers meals on a credit basis from the general mess to simplify procedures during the emergency situation.

SUMMARY

In this chapter we discussed planning a field site, good characteristics, different types of water sources and their regulations, properly dispose of all garbage, proper procedures for battle feeding, and different types of pests and how to rid them.

APPENDIX I

ACRONYMS USED IN THIS TRAMAN

AFRS	Armed Forces Recipe Service
AVI	*Army Veterinarian*
BDFA	*Basic daily food allowance*
BUMED	*Bureau of Medicine and Surgery*
BUPERS	*Bureau of Personnel*
CARGO	Consolidated Afloat Requisitioning Guide Overseas
COMNAVSUPSYSCOM	*Commander, Naval Supply Systems Command*
CONUS	*Continental United States*
CO	*Commanding Officer*
CPO	*Chief Petty Officer*
CS	*Culinary Specialist*
DLA	*Defense Logistics Agency*
DOD	*Department Of Defense*
DOP	*Date of Pack*
DSCP	*Defense Supply Center Philadelphia*
E. Coli	*Escherichia coli*
EPMU	*Environmental Preventive Medicine Unit*
XO	*Executive Officer*
FAC	*Free available chlorine*
FIFO	*First In/First Out*
FISC	*Fleet Industrial Supply Center*
FSC	*Federal Supply Catalog*
FMSO	*Fleet Material Support Office*
FSM	*Food Service Management*
FSO	*Food Service Officer*
FY	*Fiscal Year*
GM	*General Mess*
HEPA	*High efficiency particulate air*
LCS	*Leading Culinary Specialist*
MPH	*Miles per hour*
MSDS	*Material Safety Data Sheet*

NAVSUP	*Naval Supply Center*
NFMTs	*Navy Food Management Teams*
NSCs	*Navy Supply Centers*
NSCM	*Navy Standard Core Menu*
NSDs	*Navy Supply Depots*
O&MN	*Operation and Maintenance, Navy Subsistence Account*
ORF	*Official Representation Funding*
PMA	*Primary Medical Authority*
PMS	*Planned Maintenance System*
PPM	*Parts per million*
PV	*Prime Vendor*
RTE	*Ready-to-Eat*
RTS	*Ready-to-Serve*
SAS	*Sodium Aluminum Sulphate*
SEB	*Subsistence Endurance Base*
SIK	*Subsistence-in-Kind*
SORM	Standard Organization and Regulations Manual
STEC	*Shiga toxin*
TYCOM	*Type Commander*

APPENDIX II

REFERENCES USED TO DEVELOP THE TRAMAN

CINLANTFLTINST 4210.1	*Atlantic Fleet Requisitioning Guide*
CINPACFLTINST 4235.1	*Pacific Requisitioning Guide*
NAVMED P-5010	*Bureau of Medicine and Surgery's Manual of Naval Preventive Medicine, Chapter 1, Food Safety*
NAVEDTRA 12044	*Military Requirements for Petty Officer Third Class*
NAVSEA Technical Manual Ventilator Hoods 0938-027-5010	
NAVSEA Tech Manual, Chapter 651Commissary equipment (AFLOAT)	
NAVSUP Food Service Operation Handbook	
NAVSUP P-476	*Navy Food Service*
NAVSUP P-485	*Afloat Supply Procedures*
NAVSUP P-486	*Food Service Management*
NAVSUPINST 4061.11	*Standards of Food Service*
NAVSUPINST 4355.4H	*Veterinary Surveillance Inspection of Subsistence*
NAVSUPINST 4440.179	*Report of Discrepancy (ROD) Manual*
NAVSUPINST 4610.33	*Report of Transportation Discrepancies in Shipment*
NAVSUP P-4998	*Consolidated Afloat Requisitioning Guide Overseas (CARGO)*
NAVSUP Notice 7330	*Promulgation of Daily Monetary Ration Rates (Allowances) and Fixed Price List*
OPNAVINST 3120.32	*Standard Organization and Regulations of the U.S. Navy*
OPNAVINST 11000.16 (ASHORE)	*Command Responsibility for Shore Activity Land Facilities*
SECNAVINST 5210.8	*Navy and Marine Corps Records Disposition Manual*
Service Etiquette, Fifth Edition, Author: Conetsco/Hart, ISBN 9781591143574	

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Assignment Questions

Information: The text pages that you are to study are provided at the beginning of the assignment questions.

ASSIGNMENT 1

Textbook Assignment: **"***Foodservice Administration", Chapter 1.*

1-1. To provide good foodservice in any Food service operation, it is necessary to employ all EXCEPT which of the following tools?

1. The ability to properly prepare and serve food
2. The ability to properly train Food service personnel
3. Good customer relations
4. An unlimited budget

1-2. Which of the following meat items should you serve in a shallow insert?

1. Fried chicken
2. Breaded veal cutlets
3. Beef stroganoff
4. Pork chop suey

1-3. To make sure customers receive an appetizing, palatable portion of french-fried eggplant, you should serve it in what manner?

1. Stacked in a deep insert only
2. Stacked in a deep insert containing a strainer
3. Spread loosely in a shallow insert
4. Stacked in a shallow insert

1-4. Which of the following food items is prepared in full-sized shallow steam table pan?

1. Baked Cornish Hen
2. Swiss steak
3. Baked lasagna
4. Meat loaf

1-5. What person is responsible for determining the portion size appropriate for each meal?

1. Galley supervisor
2. Galley watch captain
3. Leading CS
4. Food service officer

1-6. You should use the portion size shown on a recipe card in what manner?

1. As a fixed standard
2. As a weight control device
3. As a foodservice rule
4. As a general guide

IN ANSWERING QUESTIONS 1-7 THROUGH 1-10 SELECT THE SERVING UTENSIL USED TO SERVE THE FOOD ITEM THAT IS GIVEN AS THE QUESTION.

1-7. Scrambled eggs.

1. Tongs
2. Food turner
3. Basting spoon
4. Scoop

1-8. Peas or cabbage.

1. Ladle
2. Basting spoon
3. Perforated spoon
4. Scoop

1-9. Asparagus or broccoli.

1. Food turner
2. Perforated spoon
3. Basting spoon
4. Tongs

1-10. Salad dressings.

1. Small ladle
2. 1-ounce scoop
3. Tablespoon
4. 2-ounce dipper

1-11 What type of light will make foods appear more attractive on the serving line?

1. Red
2. Bright
3. Natural
4. Yellow

1-12. In what order is it recommended that you arrange hot foods on the serving line?

1. Main entrée, sauce or gravy, potatoes or potato substitute, vegetables, and soup
2. Main entrée, soup, sauce or gravy, potatoes or potato substitute, and vegetables
3. Soup, main entrée, sauce or gravy, potatoes or potato substitute, and vegetables
4. Soup, potatoes or potato substitute, main entree, sauce or gravy, and vegetables

1-13. When possible, you should place the dessert bar in what section of the messing area?

1. At the end of the main serving line
2. After the salad bar
3. Between the main serving line and the salad bar
4. In the center of the messing area

1-14. In what manner should non-cream puddings and similar desserts be served?

1. Portioned as the patrons approach the dessert bar
2. Spooned neatly into bowls and dishes for the patron to choose
3. Kept inside the chill box until requested
4. Self-served

1-15 You may serve bulk cold drinks and juices in all EXCEPT which of the following manners?

1. From a milk dispenser
2. From a noncarbonated beverage dispenser
3. From glass or plastic pitchers
4. In their original containers

1-16. If the physical setup of the mess allows. in what location should you place the salad bar?

1. Where the patron can choose a salad first
2. Next to the chill box
3. After the main serving line
4. In the center of the messing area

1-17. A GM gains all EXCEPT which of the following benefits by using both a normal and a speed line?

1. A reduced waiting times
2. A more pleasant atmosphere
3. The need for a cycle menu
4. An easier prepared menu

1-18. You should classify a meal consisting of pot roast, mashed potatoes, brown gravy, peas, celery sticks and sweet pickles, hot rolls, and blueberry pie as what type of meal?

1. An expensive meal
2. A low-calorie meal
3. A built-in garnished meal
4. A holiday meal

1-19. When you are garnishing food items, which of the following practices is encouraged?

1. The use of food coloring to supply color contrast
2. The use of restraint
3. The use of inedible garnishes
4. The use of elaborate garnishes

1-20. When preparing to slice a roast, you should first cut one slice across the top of the roast for what purpose?

1. To provide a surface to place the meat fork
2. To allow the meat to become firm
3. To permit the meat to be sliced with greater ease
4. To determine the direction of the grain of the roast

1-21. What person sets the hours for the serving of meals?

1. Executive Officer
2. Food Service Officer
3. Officer of the day or duty officer
4. Commanding officer

1-22. As a general rule, you should set up the serving line what specific number of minutes before the regular meal?

1. 10
2. 15
3. 30
4. 45

1-23. Before dishing out stew, chili con came, or any similar item to a patron, you should stir the item for what reason?

1. To conceal the grease content
2. To ensure the hottest portion possible
3. To maintain the foods appetizing appearance
4. To distribute the solid particles and the liquid evenly

1-24. In a messing facility, what is the recommended location to place silverware?

1. At the beginning of the main serving line
2. At the end of the main serving line
3. After the dessert bar
4. Before the salad bar

1-25. You should conduct an inventory of all dinnerware at what frequency to make sure there is enough to last an entire meal?

1. Daily
2. Weekly
3. Twice weekly
4. Twice monthly

1-26. What source will give you the most ideal information to use in planning your endurance load?

1. Usage data generated during extended unreplenished operations
2. Data that represents usage during replenishment operations
3. Usage data from a ship of the same class
4. The subsistence endurance base (SEB)

1-27. If the total quantity of coffee consumed during the previous accounting period was 3,750 pounds, you surveyed 80 pounds, transferred 100 pounds, and the fleet or type commander established a 45-day subsistence endurance base (SEB), what is your low limit?

1. 1,783
2. 1,785
3. 1,874
4. 1,875

1-28. When a perishable subsistence item has a storage life greater than the high limit number of days' endurance established by the fleet or type commander, it should be handled in which of the following manners?

1. Requisitioned at the low limit
2. Requisitioned beyond high limit
3. Assigned a low limit
4. Assigned a number one priority

1-29. If the total quantity of oven roast consumed during the previous accounting period was 23,950 pounds, you surveyed 200 pounds, transferred 450 pounds, and the fleet or type commander established a 50-day SEB, what is your low limit in pounds?

1. 12,944
2. 12,954
3. 13,305
4. 13,306

1-30. If the total quantity of peanut butter consumed during the previous accounting period was 4,632 jars, you surveyed 20 jars, transferred 45 jars, and the fleet or type commander established a 75-day SEB, what is your high limit in jars?

1. 3,780
2. 3,781
3. 3,804
4. 3,806

1-31. If the total quantity of pork loin consumed during the previous accounting period was 13,847 pounds, you surveyed 80 pounds, transferred 950 pounds, and the fleet or type commander established a 75-day SEB, what is your high limit in pounds?

1. 6,408
2. 6,409
3. 10,681
4. 10,685

IN ANSWERING QUESTIONS 1-32 THROUGH 1-35 SELECT Group 89 subgroup requirements for the following food items:

1-32. Dairy foods.

1. 8905
2. 8910
3. 8915
4. 8920

1-33. Fruits.

1. 8915
2. 8920
3. 8925
4. 8930

1-34. Bakery and cereal products.

1. 8920
2. 8925
3. 8930
4. 8935

1-35. Coffee, tea, and cocoa.

1. 8925
2. 8945
3. 8950
4. 8955

1-36. The Consolidated Afloat Requisitioning Guide Overseas (CARGO), NAVSUP P-4998, is issued annually through what office or organization?

1. Defense Logistics Agency
2. Defense Personnel Support Center
3. Fleet Material Support Office
4. NAVSUP

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ASSIGNMENT 2

Textbook Assignment: **"***Nutrition and Menu Planning", Chapter 2,* **"***Foodservice Management", Chapter 3 &* **"***Receipt, Inspection, Expenditure and Storage of Food items", Chapter 4.*

2-1. A well-balanced meal is only obtained by including a specific portion from each of the various food groups. What total number of nutrients should this balanced meal provide?

1. Eight
2. Six
3. Five
4. Four

2-2. Which of the following minerals is responsible for carrying oxygen to the blood?

1. Phosphorus
2. Calcium
3. Iron
4. Iodine

2-3. The chief suppliers of tissue-building material.

1. Proteins
2. Minerals
3. Vitamins
4. Carbohydrates

2-4. Which of the following foods is the best source of iron?

1. Collard greens
2. Milk
3. Liver
4. Bread

2-5. A deficiency of what mineral can cause swelling (goiter) of the thyroid gland?

1. Salt
2. Iodine
3. Iron
4. Calcium

2-6. Stored in the muscles as glycogen.

1. Water
2. Carbohydrates
3. Minerals
4. Vitamins

2-7. What vitamin plays a very important role in eye function and in keeping the skin and mucous membranes resistant to infection?

1. A
2. C
3. E
4. K

2-8. Strict vegetarians are likely to be deficient in what vitamin?

1. B6
2. B12
3. Niacin
4. Folacin

2-9. Sunlight enables your body to produce what vitamin if it has a chance to shine directly on the skin?

1. B6
2. B1 2
3. D
4. K

IN ANSWERING QUESTIONS 2-10 THROUGH 2-12, SELECT THE VITAMIN THAT MATCHES THE DESCRIPTION GIVEN AS THE QUESTION.

2-10. Needed in order to use calcium and phosphorus to build strong bones and teeth.

1. B1 2
2. C
3. D
4. K

2-11. Presently being explored as an antioxidant that may retard some aspects of the aging process.

1. B1
2. B2
3. E
4. K

2-12. Essential for the manufacture of a substance that helps blood to clot.

1. A
2. B1
3. B12
4. K

2-13. You should use the food guide pyramid for daily food choices on menus to accomplish what objective?

1. To eliminate the need for menu review boards
2. To determine the foods that have the highest acceptability
3. To quickly and reliably judge the nutria tional adequacy of the menu
4. To give a detailed analysis of the cost of the menu

2-14. Nursing mothers require what specific number of servings daily from the milk-cheese group?

1. Five
2. Two
3. Three
4. Four

2-15. Foods from the meat group are valued primarily for providing which of the following substances?

1. Calcium
2. Carbohydrates
3. Protein
4. Fiber

2-16. Which of the following foods from the meat-poultry-fish-dry beans, egg- nuts group is/are a good source of zinc?

1. Oysters
2. Tuna
3. Egg yolks
4. Dry beans

2-17. When planning menus, you should include all EXCEPT which of the following considerations in determining the choice of menu items?

1. The type and capacity of the galley equipment
2. The number of personnel to be fed
3. The number of workers in the galley
4. The planner's personal preferences

2-18. The acceptability of a food item can be determined by using all EXCEPT which of the following methods?

1. Dividing the number of portions served by the number of portions prepared
2. Averaging the figures obtained for a particular menu item over a period of time
3. Monitoring tray waste
4. Dividing the number of portions served by the number of patrons attending the meal

2-19. When predicting meal attendance, you should consider all EXCEPT which of the following factors?

1. Proximity to payday
2. Liberty trends
3. The weather
4. GM capacity

2-20. A menu–planning board should consist of all EXCEPT which of the following personnel?

1. Commanding Officer
2. Watch captain
3. Leading CS
4. S-2 LPO

2-21. Supply officers aboard fleet ballistic submarines are required to prepare and submit a NAVSUP Form 1359 at which of the following times?

1. The end of the quarter
2. The end of the fiscal year
3. The end of each patrol cycle
4. The end of each month

2-22. When an over issue exists, a GM is required to submit financial returns no later than what maximum number of days following the end of the accounting period?

1. 5
2. 10
3. 15
4. 20

2-23. When a FSO is to be relieved before the end of the accounting period and the relieving officer is not satisfied with the accountability, the commanding officer may direct the officer being relieved to submit a return covering what time period?

1. Combined accounting period
2. Temporary accounting period
3. Fractional accounting period
4. Merged accounting period

2-24. When financial returns cannot be submitted on or before the day required, a letter or message explaining the reason for the delay and the anticipated mailing date should be submitted by what person?

1. Leading CS
2. Food Service Officer
3. Executive Officer
4. Commanding Officer

2-25. When you want to merge GM financial returns of 2 fiscal years, approval must be obtained from what person or organization?

1. Disbursing officer
2. Commanding officer
3. Nearest fleet accounting and disbursing center
4. NAVSUP

2-26. What form serves as a written directive for passing information from the leading CS to the watch captains and key personnel in the GM?

1. NAVSUP Form 1059
2. NAVSUP Form 1080
3. NAVSUP Form 1090
4. NAVSUP Form 1092

2-27. FSO should evaluate all suggestions or comments and furnish a reply when requested, within hours?

1. 12
2. 24
3. 36
4. 48

2-28. How many modules are there in the FSM System Directory?

1. 9
2. 7
3. 6
4. 8

2-29. Where would you find head counts and cash sales in FSM System?

1. Inventory Module System
2. File management Module
3. Accounting Module
4. Utility Module

2-30. Which Module do you need to access to make deposits?

1. Accounting Module
2. Menu Production Module
3. Security Module
4. Utility Module

2-31. All key padlocks must be ____inch size?

1. 1 1/4
2. 2
3. 1 1/2
4. 2 1/2

2-32. The Cash Meal Payment Book would be in which of the following forms?

1. DD Form 1544
2. NAVSUP Form 1046
3. NAVSUP Form 470
4. DD Form 1446

2-33. The _____must maintain, in the supply office, a current file of all LOA'S applicable to operating the supply department?

1. Food Service Officer
2. Supply Officer
3. Services Officer
4. Division Officer

2-34. Under normal conditions, subsistence items received from commercial vendors are inspected at which of the following points?

1. Origin only
2. Destination only
3. Origin and destination only
4. Origin, DPSC supply point, and Destination

2–35. Meat, poultry, fish and their by-products delivered under contract within the United States should be accepted only under what condition?

1. Are received in a frozen state
2. Are from freshly butchered animals
3. Bear the appropriate stamps from the respective government agencies
4. Pass a fitness–for–human–consumption inspection upon receipt

2-36. In what manner should food items be classified that do not meet expected or desired standards, but do not constitute a health hazard to personnel if consumed?

1. Satisfactory nonhazardous food items
2. Satisfactory hazardous food items
3. Unsatisfactory hazardous food items
4. Unsatisfactory nonhazardous food items

2–37. An example of a nonhazardous food item received under unsatisfactory conditions is described by which of the following cases?

1. Chicken wings in a box labeled breasts
2. Ice cream received on a hot day
3. Fresh fish packed in ice
4. A case of jarred pickles with loose lids and seepage

2-38. When a nonsubstantial shortage in shipment of food items occurs, which of the following actions should be performed?

1. Refuse receipt of food items being delivered
2. Document the actual quantity physically received
3. Survey the quantity that the shortage represents
4. Absorb the shortage as part of the stores consumed

2–39. When an overage in shipment occurs from a commercial vendor, you should take which of the following actions?

1. Record the actual quantity received on all applicable documents
2. Record only the requested quantity but accept all items
3. Prepare a dummy invoice to reflect the actual amount received
4. Return any excess quantities to the vendor

2-40. Upon receipt of material from a commercial vendor, the inspector should remove what minimum number of copies of the DD Form 1155 from the outstanding purchase order file for receipt documentation?

1. One
2. Two
3. Three
4. Four

2-41. When orders are placed for delivery of an item over an extended period, the amount of the delivery is noted on the DD Form 1155 at what time?

1. When the orders are placed
2. When each order is received
3. At the end of the week
4. At the end of the month

2-42. What storage principle is used when you place items that are issued most frequently nearest to the breakout area?

1. Orderliness
2. Accessibility
3. Cleanliness
4. Safety

2-43. When placing case goods in the storage area so that they can be counted by sight without being moved, you are using what storage principle?

1. Safety
2. Accessibility
3. Orderliness
4. Size

2-44. Under normal conditions, you should store semi perishable food items in what manner?

1. In a chill box
2. In a non-refrigerated space
3. In a clean, warm, well–ventilated space
4. In a clean, cool, dry, well-ventilated space

2-45. You should base the length of storage for your semi-perishable food items upon what factor?

1. The moisture content of the product
2. The percent of humidity in the storage space
3. The actual date of receipt of the product
4. The packing date of the product

2-46. At what time may you issue new stock when older stock is still present?

1. When issuing food items to a private mess
2. When transferring food items to another activity
3. When preparing for a holiday or special meal
4. When newer stock shows signs of deterioration or spoilage

2-47. What immediate action should you take with food items that have been stored beyond the safe storage limit?

1. Conduct an investigation to determine the cause
2. Inspect for spoilage, leakage, or other damage
3. Promptly issue for use
4. Survey and expend from the records

2-48. Food items with an average keeping time of 90 days are stored in a space with the storage temperature maintained at 90°F. What is the resulting keeping time of the food items stored in this space?

1. 45 days
2. 50 days
3. 65 days
4. 70 days

4–49. Food items with an average keeping time of 90 days stored at 41°F will have what keeping time?

1. 90 days
2. 120 days
3. 180 days
4. 200 days

4–50. When storing fresh fruits and vegetables, you should allow what minimum clearance between the tops of stacks and the openings of air ducts to permit air circulation?

1. 6 inches
2. 8 inches
3. 12 inches
4. 24 inches

2-51. Upon receipt of frozen fruit and vegetables, you should take the temperatures of select cartons. What should you do if the temperatures taken are higher than that of the frozen storage space?

1. Refuse receipt of the frozen product
2. Immediately issue to the galley for use
3. Scatter the shipping cases loosely about the deck of the freezer
4. Store items to the back of the freezer near fans

2-52. Which of the following statements is NOT correct regarding breaking out frozen food items from refrigerated spaces?

1. Breakouts should be planned for a full day's requirements
2. All items should be stored temporarily in the chill box if not intended for immediate use
3. All messes must draw their frozen subsistence items at different times
4. All messes must draw their frozen subsistence items at a predetermined time

2-53. When you load frozen stores, the higher temperature of the food being stored will cause a rise in temperature in the refrigerated space. What should your resulting actions be as the person in charge of this space?

1. Conduct only emergency breakouts until the temperature returns to normal
2. Place bags of ice in the freezer to help lower temperature
3. Leave the box closed until the normal temperature level has been reached
4. Increase the flow of Freon to the refrigerated unit

ASSIGNMENT 3

Textbook Assignment: **"***Sanitation", Chapter 5.*

3-1. In this type of food borne illness, the food in its natural state contains elements poisonous to humans.

1. Chemical food poisoning
2. Food infection
3. Natural food poisoning
4. Food intoxication

3-2. Serving lemonade that has stood in metal-plated pitchers for several hours can result in wht kind of problem.

1. Chemical food poisoning
2. Food infection
3. Natural food poisoning
4. Food intoxication

3-3. This type of illness is caused by poisonous toxins.

1. Chemical food poisoning
2. Food infection
3. Natural food poisoning
4. Food intoxication

3-4. This type of food illness is caused by microorganisms such as salmonella.

1. Chemical food poisoning
2. Food infection
3. Natural food poisoning
4. Food intoxication

3-5. When you are using unfamiliar foods, which of the following statements is the rule that applies?

1. Prepare according to the instructions that accompany the food item
2. Cook the food to the well-done state
3. Use a local recipe approved by the food service officer
4. Use food only if the medical officer gives approval

3-6. After silverware has been detarnished, which of the following chemical poisonings may result if improperly washed and sanitized?

1. Cyanide poisoning
2. Zinc poisoning
3. Lead and arsenic poisoning
4. Fluoride poisoning

3-7. Which of the following chemical poisonings may result from eating improperly washed raw fruits or vegetables?

1. Fluoride poisoning
2. Lead poisoning
3. Methyl chloride poisoning
4. Zinc poisoning

3-8. Most food poisoning is caused by bacteria called staphylococcus. This bacteria is found in which of the following areas?

1. Pimples only
2. Pimples and nasal discharge only
3. Pimples, nasal discharge and throat
4. Nasal discharge and infected cuts

IN ANSWERING QUESTIONS 3-9 THROUGH 3-12, SELECT THE ILLNESS THAT MATCHES THE DESCRIPTION GIVEN AS THE QUESTION.

3-9. May be present in improperly preserved canned food.

1. Trichinosis
2. Bacillus dysentery
3. Botulism
4. Salmonellosis

3-10. The main source of this infection is personnel who do not wash their hands after leaving the head.

1. Amoebic dysentery
2. Bacillus dysentery
3. Botulism
4. Salmonellosis

3-11. Some fresh fruits or vegetables served chilled and moist may carry this infection.

1. Amoebic dysentery
2. Bacillus dysentery
3. Botulism
4. Salmonellosis

3-12. Most likely to occur from serving rare pork.

1. Amoebic dysentery
2. Bacillus dysentery
3. Trichinosis
4. Salmonellosis

3-13. The greatest majority of food infection outbreaks is caused by what meat?

1. Turkey
2. Beef
3. Ham
4. Lamb

3-14. You can best prevent a case of beef tapeworm infection from occurring in prepared beef products by following what procedure?

1. Cook the beef until well-done
2. Pickle the beef in a 23-percent salt solution for 5 days
3. Freeze the beef at 14°F or below for at least 5 days
4. Use only government–inspected beef

3-15. Bacteria is classified in which of the following manners?

1. By the damage they cause
2. By the symptoms they produce
3. By the number of times they multiply
4. By their shape

3-16. Under favorable conditions, how many bacteria will be produced by one bacterium in a 2-hour period?

1. 12
2. 18
3. 36
4. 64

3-17. What temperature range will kill bacteria in the shortest time?

1. 0°F and below
2. 40°F to 140°F
3. 175°F to 180°F
4. 212°F and up

3-18. Which of the following carriers of bacteria is/are most likely to transmit disease to food?

1. Flies
2. Rodents
3. Soil
4. Foodservice personnel

3-19. In addition to the required physical examination, all personnel must be tested for which of the following diseases?

1. Tuberculosis
2. Hepatitis
3. Typhoid fever
4. Shigellosis

3-20. All foodservice personnel must repeat medical tests when away from work for what minimum number of days?

1. 30
2. 45
3. 60
4. 75

3-21. In cases where environmental health officers or preventive medicine technicians are not available to perform the initial sanitation training, who may conduct the training?

1. A CS3
2. Any corpsman
3. Food service officer
4. Any qualified foodservice sanitation instructor

3-22. When you are working in food preparation areas, you should change clothing and aprons at which of the following times?

1. At the end of the meal being prepared
2. At the end of the day
3 When returning from the restroom
4. As soon as clothing or apron gets soiled

3-23. Which of the following offices or officials imposes public health ordinances and regulations on the military?

1. Surgeon General
2. The U.S. Department of Agriculture
3. The Bureau of Medicine and Surgery
4. The National Sanitation Foundation

3-24. The majority of foodborne disease outbreaks are due to what total number of different factors?

1. Six
2. Seven
3. Three
4. Four

3-25. Which of the following types of food should never be saved as leftovers?

1. Meats that are cut or sliced
2. Unopened individual serving containers
3. Ground or chopped foods
4. Cooked pork products

3-26. After what specific number of hours should protein foods that have been held at temperatures between 41°F and 135°F be considered unsafe for consumption?

1. 5
2. 2
3. 3
4. 4

3-27 A CS keeps a leftover roast of beef on a table for 45 minutes one afternoon while cleaning the refrigerator. The CS has it out for another half hour the next day to prepare sandwiches. Exactly how much longer may the roast beef be safely kept out of the refrigerator?

1. 1 hours and 45 minutes
2. 2 hours and 45 minutes
3. 3 hours and 45 minutes
4. 4 hours and 45 minutes

3-28. Which of the following statements concerning preparation of food is correct?

1. Hand preparation decreases the chance of contamination
2. Hand preparation increases the length of time that foods can be held as leftovers
3. Hand prepared protein foods can only be held as leftovers for 12 hours
4. Hand prepared protein foods should not be used as leftovers

3-29. For which of the following reasons should foods that are to be refrigerated be placed in shallow pans to a depth of not more than 3 inches?

1. To make sure the pan does not spill while in chilled storage
2. Because more than 3 inches will make the pan too heavy to carry
3. To allow the food to cool faster
4. Because 3 inches is the maximum allowable amount of food that you can save as leftovers

3-30. Leftover stew will be unsafe for use after being chilled and stored for what minimum number of hours?

1. 12
2. 24
3. 36
4. 48

3-31. For which of the following reasons will bacteria spread rapidly through frozen meat that has been thawed?

1. Freezing hardens the tissue
2. Freezing breaks down the tissue
3. Freezing strengthens the bacteria
4. Freezing dries out the tissue

3-32. Which of the following statements is correct concerning foods that are frozen and then thawed?

1. The food must be refrozen immediately
2. The food must be discarded
3. The food must be kept in covered containers at room temperature
4. The food must be stored under 40°F

3-33. Milk should be no more than what maximum temperature at the time of delivery?

1. 40°F
2. 44°F
3. 45°F
4. 50°F

3-34. Green vegetables suspected of being contaminated with pathogenic organisms should be treated in what manner?

1. Washed thoroughly under running water
2. Chemically sanitized and thoroughly rinsed
3. Broken apart and inspected for bugs
4. Cooked by boiling to kill any bacteria present

IN ANSWERING QUESTIONS 3-35 THROUGH 3-37, SELECT THE CAN DEFECT THAT MATCHES THE DESCRIPTION GIVEN AS THE QUESTION.

3-35. Both ends of the can bulge outward because of bacterial action and gas production. Ends do not yield to finger pressure.

1. Flipper
2. Springer
3. Pinhole
4. Sweller

3-36. One end or both ends bulge outward because of bacterial action and gas. Ends yield to finger pressure.

1. Sweller
2. Pinhole
3. Springer
4. Flipper

3-37. Both ends of the can are flat, but one end will bulge outward when the opposite end receives pressure.

1. Flipper
2. Springer
3. Pinhole
4. Sweller

IN ANSWERING QUESTIONS 3-38 THROUGH 3-42, SELECT THE TYPE OF SOIL THAT MATCHES THE DESCRIPTION GIVEN AS THE QUESTION.

3-38. The soil that remains immediately after the equipment or utensil has been used.

1. Daily deposit
2. Built-up deposit
3. Freshly deposited soil
4. Cooked deposit

3-39. The soil that remains as the result of ineffective cleaning following a flushing with water.

1. Baked deposit
2. Built-up deposit
3. Rinse deposit
4. Thin film

3-40 The result of repeated ineffective cleaning methods causing a day-by-day accumulation of soil.

1. Daily deposit
2. Built-up deposit
3. Freshly deposited soil
4. Thin film

3-41. An accumulation that results from drying action and formation of a heavy crusty deposit.

1. Baked deposit
2. Built-up deposit
3. Dried deposit
4. Heavy deposit

3-42. The result of being cooked onto equipment and having become difficult to remove.

1. Baked deposit
2. Built–up deposit
3. Cooked deposit
4. Dried deposit

3-43. All EXCEPT which of the following procedures should be followed when washing dishes and utensils?

1. Scrape food residue from all dinnerware
2. Use brushes that can be sanitized
3. Leave the dishes and utensils on the drain board to air dry
4. Use hard abrasives to remove baked-on foods from pots and pans

3-44. What are the two methods of manual dishwashing?

1. The standard method and the preferred method
2. The best method and the acceptable method
3. The adopted method and the required method
4. The preferred method and the acceptable method

3-45. On spray-type dishwashing machines, water flow should not be less than how many pounds per square inch for the final rinse?

1. 10
2. 15
3. 25
4. 45

3-46. When you have a problem with insects or rodents, what is the first and most important pest control measure you should take?

1. Destroy breeding grounds
2. Set out insect and rodent traps
3. Notify the medical department
4. Install screens and seal unnecessary openings

3-47. Which of the following foodservice general cleaning methods yields the best results?

1. Clean for 2 hours at the end of each day
2. Clean up your mess as you work
3. Field day once per week
4. Field day twice per week

3-48. Radiological defense includes all such measures used to minimize personnel and material damage from radioactivity. The basic responsibility for this function belongs to what person?

1. Executive officer
2. Damage control officer
3. Food service officer
4. Medical officer

3-49. What type of radiation is considered to be the most hazardous?

1. Alpha
2. Beta
3. Gamma
4. Neutron

3-50. When ingested with food, inhaled, or admitted into the body through cuts or open wounds, what specific type of radiation becomes particularly destructive if it is retained in the body for a lengthy time?

1. Neutron
2. Gamma
3. Beta
4. Alpha

3-51. Radioactivity can only be removed by using what process?

1. Chemical neutralization
2. Physical removal
3. Sterilization
4. Cooking

3-52. The method of gross decontamination is limited to removing radioactive material from which of the following sources?

1. Food contact surfaces
2. The galley deck
3. Galley personnel
4. Canned food items

3-53. In what case, if any, may you use water already contaminated by radioactivity in the process of decontamination?

1. It can be used only to wash decks
2. It can be used for all gross decontamination procedures
3. It can be used to wash surfaces more heavily contaminated than the water
4. None; it cannot be used for any decontamination purposes

3-54. Which of the following cleaning solutions may you use in radiological decontamination if you do not have a cleaning agent specifically designed for decontaminating galley surfaces?

1. Citric acid, trisodium phosphate, and hot water
2. General-purpose detergent, trisodium phosphate, and hot water
3. Chlorine bleach, general-purpose detergent, and hot water
4. Vinegar, general-purpose detergent, and hot water

3-55. In what order should the steps used in decontaminating spaces and equipment be performed?

1. Flush with water, scrub with alkaline detergents, rinse with water, and apply acid solution
2. Flush with water, scrub with alkaline detergents, apply acid solution, and rinse with water
3. Apply acid solution, rinse with water, scrub with alkaline detergents, and flush with water
4. Scrub with alkaline detergents, flush with water, apply acid solution, and rinse with water

3-56. Cracked and badly scratched glassware and plastic ware should be decontaminated in what manner, if any?

1. Machine washed, rinsed, dried, and each item monitored
2. Washed with a detergent followed by an acid treatment
3. Segregated to await natural decay of contamination
4. None; they should be disposed of immediately

3-57. What may be worn in the absence of regulation masks to prevent radioactive particles from gaining entry into the body by ingestion or inhalation?

1. Chemically treated layers of gauze covering the nose and mouth
2. A filter improvised from wet towels treated with an acid solution
3. An improvised face shield covered with aluminum foil to reflect radiation
4. A particulate air filtering respirator

3-58. In what manner should you identify an area that has been recontaminated?

1. Draw a chalk line around it
2. Cover it with canvas
3. Paint it purple
4. Rope it off

3-59. Which of the following statements pertaining to biological agents is NOT correct?

1. Biological agents destroy both living matter and inorganic matter
2. Good sanitary and hygienic practices do not defend against biological warfare
3. Sickness could be caused by contamination that occurred weeks before
4. Hardier organisms are present in higher levels of contamination

3-60. Because of the current difficulties in rapidly detecting biological agents, an incident of biological contamination may likely be detected in what way?

1. Use of radiation monitoring equipment
2. Knowledge of an impending biological assault
3. The occurrence of widespread or unusual sickness
4. The absence of plants and animals

3-61. What chemical solution should be used for biological decontamination?

1. Citric acid and water solution
2. Trisodium phosphate, general–purpose detergent, and water solution
3. Calcium hypochlorite (bleach) solutions
4. Lime solutions prepared by the medical department

3-62. Which of the following statements is NOT correct regarding secondary aerosols?

1. They may cause recontamination
2. They are clouds formed from particles (bacteria or other organisms)
3. They may be suppressed by wetting surfaces with oil or water
4. They do not recontaminate the air that is breathed

3-63. If available, what should you use for the biological decontamination of food packed in impermeable packages?

1. Sodium carbonate
2. Vinegar
3. Citric acid
4. Sodium phosphate

3-64. In an emergency when no regular water treatment facilities are available, which of the following methods should be used to render the water supply safe for drinking?

1. Adding ethylene oxide
2. Boiling the water for 20 minutes or longer
3. Adding laundry bleach
4. Filtering the water through wood ashes

3-65. Metal and china utensils that have been exposed to light liquid contamination should be immersed in actively boiling water containing an alkaline detergent for what specific number of minutes?

1. 5
2. 10
3. 20
4. 30

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ASSIGNMENT 4

Textbook Assignment: *"Foodservice Equipment", Chapter 6.*

4-1. You should observe which of the following general precautions before attempting to operate any foodservice equipment?

1. Know the telephone numbers and methods of reporting emergencies
2. Know the location of all safety and emergency switches
3. Determine the location of the fire extinguishers
4. Each of the above

4-2. You are required to perform which of the following tasks before any major cleaning evolution involving electrical equipment?

1. Tag-out the equipment according to the tag-out bill
2. Notify the medical department so that they can supervise the evolution
3. Notify your supervisor of the scheduled evolution
4. Attend safety training provided by the ship's safety officer

4-3. Undue health hazards may be avoided when using foodservice equipment by carrying out which of the following measures?

1. Follow correct operating procedures
2. Adhere to proper cleaning schedules
3. Give equipment adequate preventive maintenance
4. Each of the above

4-4. You should use what type of water to recharge the vacuum system of the electrical steam-jacked kettle?

1. Mineral
2. Regular tap
3. Distilled
4. Condensed

4-5. The size of steam-jacketed kettles varies over what specific gallon capacity range?

1. 4 to 45
2. 4 to 80
3. 5 to 45
4. 5 to 80

4-6. When you are operating a steam-jacketed kettle, which of the following actions can have dangerous consequences?

1. Filling the kettle three-fourths full
2. Closing the safety valve when you are turning on the steam
3. Cleaning the kettle with boiling water
4. Using the faucet at the bottom of the kettle to remove gravies or sauces

4-7. The safety valve on the steam-jacketed kettle is installed to accomplish what purpose?

1. Add more heat to the kettle during cooking
2. Remove residual water from the steam within the kettle
3. Prevent the kettle from overheating
4. Keep the kettle from exploding by releasing excess steam pressure

4-8. What does the signal light that is provided for each thermostat on the electric griddle indicate when the light is on?

1. The grill is still warming up and has not reached the desired temperature
2. The grill is maintaining the correct temperature while in use
3. The grill is overheating and should be turned down or off
4. The grill has just warmed beyond the preset temperature

4-9. Before starting griddle cleaning procedures, you must perform which of the following preparation tasks?

1. Use a cellulose sponge to dry up any liquid
2. Remove grease traps and empty any grease
3. Get a container of hot soapy water for cleaning
4. Secure electrical power at the main source of power

4-10. After the grill has been thoroughly cleaned; you must preheat it to 200°F. Once this temperature is reached you should spread a light film of cooking oil over the surface of the grill. You should then wait 5 minutes, wipe the surface clean of excess oil, then repeat. What is this procedure called?

1. Blueing
2. Browning
3. Seasoning
4. Glazing

4-11. The tilting skillet has a secondary thermostat that acts as a high-limit cutoff. It disables the power circuit when the temperature exceeds what level?

1. 400°F
2. 425°F
3. 450°F
4. 460°F

4-12. What does the size of a deep-fat fryer indicate?

1. The number of pounds of french-fried potatoes that can be prepared per minute
2. The number of pounds of french-fried potatoes that can be prepared per hour
3. The number of pounds of french-fried potatoes that can be prepared in 5 minutes
4. The total number of french-fried potatoes that can be prepared at one time

4-13. When it is necessary to melt solid fat in the deep-fat fryer, you should follow which of the following procedures?

1. Set the thermostat at the temperature prescribed in the *Armed forces Recipe Service*
2. Check the temperature of the fat frequently during the melting process with a hand thermometer
3. Make sure the fat covers the uppermost coil at all times and the temperature is no more than 200°F while the fat is melting
4. Have a person standing by with a PKP extinguisher

4-14. Fryer shuts off automatically when shortening reaches what temperature?

1. 380°F – 400°F
2. 400°F – 420°F
3. 425°F – 430°F
4. 430°F – 460°F

4-15. Frying foods containing excess moisture in a deep-fat fryer will produce which of the following results?

1. Cause the grease to overheat
2. Cause the grease to smoke heavily
3. Cause the grease to boil over
4. Cause the grease to become rancid

4-16. How should you extinguish a fire in the deep-fat fryer when the automatic fire extinguisher fails to set off automatically or manually?

1. Use water
2. Smother the fire with the deep-fat fryer cover
3. Use a CO extinguisher
4. Use a PKP extinguisher

4-17. Which of the following statements is NOT correct regarding the operation of convection ovens?

1. Overall, cooking temperatures are higher than in conventional ovens
2. The amount loaded into the oven at one time will influence the cooking time
3. A blower fan circulates hot air throughout the oven, eliminating cold spots
4. Overall, cooking time is shorter than in conventional ovens

4-18. Which of the following actions is the major cause of nonuniform baking and roasting?

1. Opening the oven door too frequently
2. Overloading the oven
3. Improper placement of food in the oven
4. An insufficient preheat period

4-19. When baking, you should determine the desired cooking times in both convection and conventional ovens by using which of the following resources?

1. The AFRS
2. Oven manufacturer's operating manual
3. A thermometer
4. Visual examination

4-20. What cleaning agent should you use to clean Teflon oven panels?

1. Oven cleaner
2. Scouring powder
3. Concentrated lemon juice
4. Hot sudsy water

4-21. Which of the following attachments for the electric food mixer should you use for lightweight mixing?

1. Wire whip
2. Flat beater
3. Churn paddle
4. Dough hook

4-22. When mixing ingredients, you should never fill the mixing bowl beyond what level?

1. 3/8 full
2. 1/2 full
3. 2/3 full
4. 3/4 full

4-23. The wheel crank control on a large electric mixer controls what mixer function?

1. The tightening of the beater in the beater shaft
2. The speed of the mixer
3. The lowering of the beater to the proper position for beating
4. The raising of the mixing bowl to the proper position for beating

4-24. When you mix ingredients too long after they are already properly blended, you risk obtaining what result?

1. Excessive moisture due to the breakdown of the ingredients
2. A higher finished temperature than the desired temperature
3. Blended ingredients becoming separated
4. Excessive heat from mixing that reduces the moisture content of the blended ingredients

4-25. Which of the following procedures should you perform first when operating the automatic feed meat-slicing machine?

1. Set the dial for the desired thickness
2. Set the machine on automatic
3. Place the meat in the carriage and adjust the clamp
4. Turn on the power to the machine

4-26. All EXCEPT which of the following statements describe a safety feature of the meat-slicing machine?

1. It is hard wired
2. It has a backup electric switch
3. It has a revolving disk knife
4. It should not be operated without the blade guard

4-27. Most steamers used in the Navy consists of _____?

1. A one door, one compartment unit
2. A two door, two compartment unit
3. A three door, three compartment unit
4. A four door, four compartment unit

4-28. When steam enters the high compression unit at what miles per hour is it jetted onto frozen foods?

1. 100
2. 200
3. 300
4. 400

4-29. How often should the steamer be scrubbed clean and rinsed with hot water?

1. After each meal
2. Twice daily
3. Once a week
4. Every evening

4-30. Filters for the filter-type ventilator hood must be cleaned at what minimum frequency?

1. Once a day
2. Once a week
3. Twice a week
4. Once a month

4-31. What is the main function of the Gaylord ventilator hood?

1. To supply fresh air
2. To extract grease from the air
3. To cool the area
4. To filter fumes from the air

4-32. In later model ventilator hoods equipped with automatic cleaning capabilities, the thermostat switch located in the exhaust ductwork operates a magnetic trip inside the fire damper control box when the temperature reaches 250°F. When this occurs, what will the resulting actions be?

1. The fire damper slams shut and the blower shuts down only
2. The fire damper slams shut and PKP is released only
3. The fire damper slams shut, the blower shuts down, and PKP is released
4. The fire damper slams shut, the blower shuts down, and water is released

4-33. Which of the following sources provide(s) engineering personnel with complete technical information on airflow, electrical characteristics, and other data of primary use concerning ventilator hoods?

1. Material safety data sheets (MSDSs)
2. Planned maintenance system (PMS) cards
3. NAVSEA Technical Manual
4. Shipboard Foodservice Equipment Catalog

4-34. What is the function of a dough proofer?

1. Storing baked bread
2. Used as a food warmer
3. Storing bread pans
4. Conditioning dough and cooling baked breads

4-35. How are dough proofers heated?

1. By steam coils and electric heating elements
2. By steam coils only
3. By electric heating elements only
4. By individual bread racks

4-36. For what reason is the platform on the bread slicer where the bread is placed angled at 45 degrees?

1. So that bread will not be torn while being sliced
2. To guard your fingers from the blades
3. To allow half of the blades to go in the opposite direction
4. To force the bread down on the cutting blade

4-37. What are the capacities in pounds of a vegetable peeler?

1. 5, 10, 20, 30
2. 10, 15, 20, 30
3. 10, 15, 30, 50
4. 10, 20, 30, 50

IN ANSWERING QUESTIONS 4-41 THROUGH 4-44, SELECT THE TYPE OF MACHINE THAT MATCHES THE DESCRIPTION GIVEN AS THE QUESTION.

4-38. The disk has a wavy surface that agitates the vegetables in such a manner that they continually present new surfaces for action by the abrasive material.

1. Vegetable peeler
2. Vegetable cutter
3. Vegetable cutter and slicer
4. Vegetable shaper

4-39. Makes three classes of cuts of vegetables— shredded, sliced, and grated-- without the use of attachments or removable parts.

1. Vegetable shaper
2. Vegetable cutter
3. Vegetable cutter and slicer
4. Vegetable peeler

4-40. This machine may be used to do as many as three different cutting jobs at once.

1. Vegetable shaper
2. Vegetable cutter
3. Vegetable cutter and slicer
4. Vegetable peeler

4-41. This machine may be used to cut french fries.

1. Vegetable shaper
2. Vegetable cutter
3. Vegetable cutter and slicer
4. Vegetable peeler

4-42. For which of the following meat-cutting jobs should you use a knife having a long, wide blade?

1. Boning beef
2. Slicing raw steak
3. Carving cooked roasts
4. Slicing bread

4-43. You should use the butcher's steel to accomplish which of the following tasks?

1. To sharpen knives
2. To keep the edges of knives straight
3. To remove chips in knives by evening the flat surface of the blade
4. To keep the blade surface wearing uniform

4-44. You must maintain the wash water in single-tank dishwashing machines within what specific temperature range?

1. 130°F
2. 125°F
3. 140°F
4. 165 °F

4-45. For a double–tank dishwashing machine, what are the minimum (a) wash and (b) rinse time intervals?

1. (a) 20 seconds: (b) 10 seconds
2. (a) 20 seconds: (b) 20 seconds
3. (a) 40 seconds: (b) 10 seconds
4. (a) 40 seconds: (b) 20 seconds

4-46. The majority of dishwashing machines in service in the Navy are what type?

1. Single-tank
2. Double-tank
3. Triple-tank
4. Manual, three-sinks

4-47. You should inspect the interior of the dishwashing machine and the manifold(s) for accumulation of calcium or lime deposits at what specific time intervals?

1. Semiweekly
2. Weekly
3. Monthly
4. Quarterly

4-48. Steam tables most commonly found in most general and private messes today are what type?

1. Those with water compartments heated by steam coils at 40 pounds of pressure or less
2. Those with steam-heated water compartments and dish warmers
3. Those with water compartments heated by immersion-electric heating elements
4. Those with water compartments and dish warmers

4-49. For what reason should the water temperature in the steam table not exceed 200°F?

1. The steam table compartments will warp
2. The steam table will shut down from overheating
3. The food in the steam table will continue to cook
4. Water will be added automatically to lower the temperature

4-50. To keep a refrigerator operating at maximum efficiency, you must observe which of the following rules?

1. Keep it clean, neat and organized
2. Do not overload it
3. Defrost it regularly and properly
4. Keep only vegetables in it

4-51. What is the specific holding temperature range for the refrigerated milk dispenser?

1. 38°F to 44°F
2. 36°F to 45°F
3. 32°F to 45°F
4. 32°F to 41°F

4-52. You should sanitize the soft-service ice-cream machine at what specific time(s)?

1. After each use only
2. After each use and at the end of the day
3. Before and after each use
4. Each day

4-53. You should remove the automatic twin coffee urn brew basket containing spent coffee grounds what number of minutes after brewing?

1. 60
2. 30
3. 3
4. 5

4-54. After a night or weekend shutdown, the proper brewing temperature in the automatic twin coffee urn requires what specific number of minutes to be obtained?

1. 30
2. 45
3. 50
4. 55

4-55. You should take which of the following measures regarding the operation of the bulk ice-making machine?

1. Allow only authorized personnel access to the machine
2. Secure the machine during non-meal hours
3. Never secure the machine during the hot months of the year
4. Store the ice scoop inside the bin below the maximum ice

ASSIGNMENT 5

Textbook Assignment: **"***Food Preparation", Chapter 7.*

5-1. After what specific number of hours should protein foods that have been held at temperatures between 41°F and 135°F be considered unsafe for consumption?

1. 5
2. 2
3. 3
4. 4

5-2. Milk should be no more than what maximum temperature at the time of delivery?

1. 40°F
2. 44°F
3. 45°F
4. 50°F

5-3. The use of standardized recipes by all branches of the military accomplishes which of the following objectives?

1. Prevents variation in food quality and quantity
2. Accommodates the use of government provisions
3. Promotes uniformity in food costs throughout the military
4. Facilitates transfer of food items from one activity to another

5-4. Ingredients are listed on each recipe card in which of the following orders?

1. From dry to liquid
2. From liquid to dry
3. From the largest to the smallest quantity
4. From the first needed to the Last

5-5. Under what circumstance are the quantities of dry ingredients on a recipe card usually given as both weights and measures?

1. When the recipe is for a bakery item
2. When the recipe calls for a large amount of liquid
3. When the recipe includes a small amount of dry ingredients
4. When the quantities of dry ingredients weigh more than one-half of an ounce

5-6. Constitutes a major addition to the total number of recipes contained in the AFRS.

1. Variations
2. Ingredients
3. Method
4. Notes

5-7. The abbreviation A.P. in the AFRS represents what meaning?

1. A portion
2. As prepared
3. As purchased
4. As planned

5-8. You should become familiar with this section first. It provides basic information.

1. Index of recipes
2. General information cards
3. Guideline cards
4. Index cards

5-9. The M section of the AFRS contains what category of recipes?

1. Soups
2. Sandwiches
3. Sauces, gravies, and dressings
4. Salad dressings and relishes

5-10. Used to adjust a recipe based upon the amount of an ingredient to be used.

1. Volume
2. Serving size
3. Yield
4. Quantity

5-11. Used to adjust recipes to yield a specific number of portions of a specific size.

1. Volume
2. Serving size
3. Yield
4. Quantity

5-12. Used to increase or decrease a recipe to obtain the desired number of portions.

1. Volume
2. Serving size
3. Yield
4. Quantity

5-13. Reconstituted egg mix must be handled in what manner if you do not use it immediately?

1. Discarded after being at room temperature for 1 hour
2. Discarded 4 hours after preparation
3. Refrigerated in a tightly covered container and discarded after 24 hours
4. Refrigerated in a tightly covered container and used within 1 hour

5-14. What is the basic rule that you should follow when preparing salad dressings?

1. Prepare immediately just before serving
2. Prepare well in advance
3. Add the seasoning just before serving
4. Use only fresh herbs

5-15. At the end of the meal, what should you do with salad dressings that were served in separate containers?

1. Place them back into the original container and refrigerate
2. Discard them
3. Label, refrigerate, then discard, if not used by the end of the day
4. Label, refrigerate, and discard, if not used within 36 hours

5-16. All raw vegetables used to prepare relishes, except leafy varieties, should be refrigerated in icy cold water for at least how many minutes?

1. 15
2. 20
3. 30
4. 60

5-17. When serving hors d'oeuvres, you will normally serve them at which of the following times?

1. During formal meals after each course
2. Before formal or informal meals
3. After formal or informal meals
4. Between lunch and dinner as an appetizer

5-18. When you are preparing sandwiches, which of the following types of bread is preferable?

1. Day-old
2. Freshly baked
3. Commercial
4. White

5-19. You can prevent bitterness in brewed coffee by taking which of the following measures?

1. Storing the coffee grounds in an air-tight container
2. Using the proper proportion of water in relation to coffee grounds
3. Cleaning the coffeepot daily with hot soapy water
4. Making sure the coffee is not brewed too long

5-20. To prevent deterioration of flavor and loss of aroma, coffee brewed in an automatic urn should not be held for more than what maximum number of minutes?

1. 20
2. 30
3. 45
4. 60

5-21. The food-preparation worksheet is retained for a period of_____ for ashore and afloat activities?

1. 1 year for afloat and 2 years for ashore activities.
2. Current month and previous three months
3. Current month and previous six months.
4. 2 years for afloat and 1 year for ashore activities

5-22. The AFRS consists of over _____ recipes including newly developed recipes and guideline cards

1. 1,800
2. 2,000
3. 1,600
4. 1,700

5-23. GMs having more than _____CS are required to use the NAVSUP Form 1090

1. One
2. Eight
3. Three
4. Two

5-24. Shell eggs should be stored at _____°F or below in a dry, well-ventilated place away from strong odors such as onions.

1. 45
2. 41
3. 35
4. 40

5-25. Inspections of fresh fruits and vegetables are based on _____ standards.

1. NAVSUP P-5010
2. USDA
3. Medical Inspector
4. Army Vets

5-26. Which of the following types of food should never be saved as leftovers?

1. Meats that are cut or sliced
2. Unopened individual serving containers
3. Ground or chopped foods
4. Cooked pork products

5-27. Leftover stew will be unsafe for use after being chilled and stored for what minimum number of hours?

1. 12
2. 24
3. 36
4. 48

5-28. Stuffing poultry with dressing in GMs is not recommended for which of the following reasons?

1. The loss of the nutritional value if prepared this way
2. Stuffing requires more moisture and will cause the poultry product to be dry
3. The possibility of food-borne illness will increase
4. Enough stuffing cannot be prepared for everyone using this method

ASSIGNMENT 6

Textbook Assignment: **"**Breads and Desserts", Chapter 8.

6-1. When preparing cakes, cookies, quick breads, pastries, and pies, you should use what type of flour?

1. Hard wheat
2. Soft wheat
3. General-purpose
4. Whole wheat

6-2. When combined with water, what food component(s) of wheat flour form(s) gluten?

1. Bran
2. Proteins
3. Carbohydrates
4. Minerals

6-3. What food component(s) of wheat flour is/are responsible for absorbing water and giving bulk to dough?

1. Enzymes
2. Bran
3. Proteins
4. Carbohydrates

6-4. For which of the following reasons are some types of flour enriched?

1. To increase storage life of the flour
2. To increase the dough's expansion qualities
3. To replace the food value lost in milling
4. To produce fermentation properties needed in baking

6-5. Which of the following components of flour is the enzyme that is responsible for converting starch into sugar?

1. Diastase
2. Protease
3. Gliadin
4. Glutenin

6-6. Gluten is capable of absorbing what percentage of its own weight in water?

1. 50
2. 75
3. 100
4. 200

6-7. When you are making bread, the use of too much salt will produce which of the following results?

1. Accelerated fermentation
2. Retarded fermentation
3. A heavy baked product
4. A coarse baked product

6-8. When you use a liquid shortening to prepare a dough product, which of the following criteria must be met?

1. The shortening must be an emulsifier type
2. The shortening must be hydrogenated
3. The liquid shortening must be salad oil
4. The dough must be well formed before the oil is added

6-9. When you substitute butter for shortening in a dough or batter recipe, what adjustment should be made?

1. Increase the liquid to be used
2. Use milk instead of water as the liquid
3. Use nonfat dry milk in place of liquid milk
4. Use more butter than the required amount of shortening in the recipe

6-10. Active dry yeast should be suspended for 5 minutes in about seven times its weight of water at what specific temperature range before it is used?

1. 95°F to 100°F
2. 100°F to 104°F
3. 105°F to 110°F
4. 111°F to 115°F

6-11. For you to use baking soda as a leavening agent, which of the following ingredients must be present in a recipe?

1. Liquid shortening
2. Sugar
3. Salt
4. Vinegar

6-12. Bread dough should range between what specific temperatures when the mixing process is completed?

1. 86°F and 90°F
2. 82°F and 86°F
3. 78°F and 82°F
4. 74°F and 78°F

6-13. The length of the fermentation period of a dough depends on all EXCEPT which of the following factors?

1. Amount of yeast used
2. Strength of the flour
3. Time needed to mix the dough
4. Temperature during fermentation

6-14. Under which of the following circumstances is dough considered to be old dough?

1. When it is fermented at too high a temperature
2. When it has already been punched
3. When it has been mixed too long
4. When it has been fermented too long

6-15. Before you take dough to the bench for makeup, you should allow it to rest for approximately what number of minutes?

1. 10
2. 15
3. 20
4. 30

6-16. Which of the following indicators should you use to determine that a loaf of bread has been properly baked?

1. The loaf has split down the center of the top
2. The loaf has a hollow sound when tapped
3. The loaf's top has a flat surface
4. The loaf slopes outward on the top

6-17. If freezer storage for bread is impractical, you can best maintain its quality by baking in quantities that will be consumed within what specific number of days?

1. 6
2. 2
3. 7
4. 4

6-18. In the event that rope develops in your bakeshop, you should perform which of the following actions?

1. Inform the damage control officer
2. Increase the humidity in the space to correct the problem
3. Have a medical department representative inspect all baked products for safety
4. Dispose of all baked products and baking ingredients in the shop

6-19. In addition to water, what other ingredient must you add to canned hot roll mix before mixing it?

1. Baking powder
2. Baking soda
3. Yeast
4. Vinegar

6-20. At what temperature must you finish baking brown-and-serve rolls after they have been baked at 300°F for 12 to 15 minutes?

1. 350°F
2. 375°F
3. 400°F
4. 425°F

6-21. When you are mixing quick breads and batters, what general rule applies?

1. Limit mixing when the leavening is produced by baking powder
2. Limit mixing when the product contains a high percentage of fat
3. Quick breads and batters are mixed in the same manner
4. Add the dry ingredients to the liquid ingredient while mixing at fast speed

6-22. You prepare the batter for which of the following products by mixing the ingredients only long enough to yield a uniform structure?

1. Doughnuts
2. Dumplings
3. French bread
4. Biscuits

6-23. What type of mix should you use to prepare quick coffee cake?

1. White cake
2. Yellow cake
3. Biscuit
4. Shortbread

6-24. The doughnut formula is prepared the same as the basic sweet dough formula in all EXCEPT which of the following ways?

1. Leavening and eggs are decreased
2. Leavening and eggs are increased
3. Only cake flour is used
4. Only general-purpose flour is used

6-25. The temperature of doughnut ingredients at the time they are mixed will affect which of the following processes during frying?

1. Proper sizing of the doughnuts
2. Amount of fat absorbed by the doughnuts
3. Color of the doughnuts
4. Ability of the doughnuts to brown

6-26. You should cool doughnuts to what specific temperature if they are to be glazed?

1. 72°F
2. 96°F
3. 140°F
4. 160°F

6-27. By omitting sugar as an ingredient, you may use which of the following dough formulas to prepare pizza dough?

1. Sweet dough
2. French bread
3. Hot rolls, short-time
4. Biscuit

6-28. A Angel Food cake is considered to be what type of cake?

1. Batter
2. Sponge
3. Chiffon
4. Foam

6-29. A cake containing both foam and batter, mixed separately and folded to a single mixture, is classified as what type of cake?

1. Angel food
2. Chiffon
3. Pound
4. Devil's food

6-30. Which of the following functions does salt perform as a cake ingredient?

1. Furnishes structure to the other ingredients
2. Helps the cake retain its moisture
3. Brings out the flavor of the other ingredients
4. Acts as a tenderizing agent

6-31. When preparing to bake angel food cakes, you should not grease the cake pans for what reason?

1. The fat will keep the cake from rising
2. The cake will develop an objectionable taste
3. The cake mix already contains enough fat to prevent sticking
4. The fat will burn sides of too quickly

6-32. At what stage of the cake baking process does the batter rise to become higher in the center than at the edges?

1. 1st
2. 2nd
3. 3rd
4. 4^{th}

6-33. When you are baking cakes in a conventional oven, what condition may result from opening the oven door before the baking time is completed?

1. The cake will require additional baking time because of the loss of heat
2. The loss of contained moisture will cause the cake to dry out
3. The cake may not brown
4. The cake may fall

6-34. When using a convection oven to bake cakes, you should allow them to bake for what specific range of minutes before turning on the blower?

1. 3 to 4
2. 5 to 6
3. 7 to 10
4. 11 to 15

6-35. When baking cakes and discovering that the cakes are cooking too quickly, you should take what action?

1. Open the oven door for several minutes
2. Close the vent for several minutes
3. Turn off the blower for 15 minutes
4. Reduce the heat 15°F to 25°F

6-36. When baking cakes to prepare jelly rolls, once they are done baking, what step should you perform next?

1. Chill them
2. Glaze them
3. Sprinkle them with sugar
4. Remove them from the pans while they are still hot

6-37. Cakes baked in a standard 16- by 26-inch sheet-cake pan should be sliced in what number of portions?

1. 48
2. 52
3. 54
4. 56

6-38. You should store cakes that are not to be used immediately at what specific temperature range?

1. 32°F to 34°F
2. 35°F to 40°F
3. 50°F to 70°F
4. 75°F to 95°F

6-39. What frosting will prevent running or weeping when used to decorate a cake?

1. Butter cream
2. Royal
3. Caramel
4. Cooked

6-40. Cookies are classified in what manner?

1. By the texture of the finished product
2. By the properties of the dough ingredients
3. By the method used to mix the dough
4. By the dough moisture content

6-41. Soft-batter cookie dough requires a greater percentage of what ingredient to give it structure?

1. Flour
2. Water
3. Fat
4. Egg

6-42. When you over-mix cookie dough, you will encounter what problem during the cooking process?

1. The spreading of the cookies will be retarded
2. The cookies will spread too much
3. The cookies will become spotted
4. The cookies will become brittle and break easily

6-43. How many No. 10 cans of cookie mix will you need to prepare 175 oatmeal cookies?

1. Five
2. Two
3. Three
4. Seven

6-44. Which of the following characteristics is NOT an indication that a piecrust has been properly made?

1. A golden brown appearance
2. A rough surface that appears blistered
3. An elastic or coarse texture
4. A crust tender enough to cut easily

6-45. The shortening used to prepare pie dough should be at what temperature when you are ready to blend it with the other ingredients?

1. 45°F
2. 50°F
3. 60°F
4. 80°F

6-46. Which of the following factors is the most important in making a tender piecrust?

1. The quantity of water and the method of mixing with other ingredients
2. Type of shortening
3. The temperature of the water (40°F to 50°F)
4. Type of flour

6-47. When you are mixing pie dough by machine, the water is added in what manner?

1. Placed in the bowl first, then the dry ingredients are gradually added while mixing
2. Half all at once and the other half when the dough starts to form
3. Added gradually while mixing
4. Added all at once while mixing

6-48. The dough sections for the bottom crust of a two-crust pie should be cut into pieces weighing what specific number of ounces?

1. 7
2. 7 1/2
3. 8
4. 8 1/2

6-49. After you place the pie dough in the pie pan and form the edges for a one-crust pie, the dough should be pricked with a fork to allow the steam formed during baking to escape. What is this procedure called?

1. Fluting
2. Docking
3. Scoring
4. Aerating

6-50. To eliminate shrinkage and cracking in pumpkin pie during baking, the mixture for the filling must set for how many minutes before you add the eggs?

1. 20
2. 30
3. 40
4. 60

6-51. When preparing lemon pie filling according to the AFRS, you should use what ingredient as the required liquid?

1. Water
2. Milk
3. Lemon juice
4. Cream

6-52. You may use all EXCEPT which of the following ingredients to prepare a chiffon pie?

1. Whipped topping
2. Meringue topping
3. Fruit gelatin
4. Fresh fruit

6-53. When adding fruit to a gelatin, you should observe what rule?

1. Use only canned fruit
2. Decrease the amount of water used
3. Never add uncooked fresh pineapple
4. Never substitute the liquid from canned fruit as part of the water

6-54. Ambrosia is a fruit cup to which what ingredient has been added?

1. Pecan
2. Coconut
3. Whipped topping
4. Cinnamon

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ASSIGNMENT 7

Textbook Assignment: **"Stateroom**/Wardroom Service"**,** Chapter 9; "Field Messes and Battle Feeding", Chapter 10.

7-1. Directives and letters of guidance for the operations of officers quarters afloat originates from what activity?

1. BUPERS
2. COMNAVSUPSYSCOM
3. DPSIC
4. NAVSUP

7-2. What person is responsible to the mess president for the service, care and maintenance of quarters afloat?

1. Leading Mess Petty Officer
2. Mess Caterer
3. Stateroom Supervisor
4. Messdeck Master-at-Arms

7-3. As a CS working in the officer's quarters afloat, you should make sure linen and towels are changed at what frequency?

1. Daily
2. Every other day
3. Semi-weekly
4. Weekly

7-4. When you find an item of an official or personal nature left in sight while cleaning an officer's stateroom, what action(s) should you take?

1. Place the item in a drawer and inform the officer
2. Examine the item and determine if it should be left out
3. Take item immediately to the officer
4. Immediately report the situation to the officer

IN ANSWERING QUESTIONS 7-5 THROUGH 7-8, SELECT THE REQUIRED FREQUENCY THAT THE STATEROOM CLEANING SHOULD BE PERFORMED.

7-5. Clean washbasin, mirror, soap container and toothbrush holders

1. Daily
2. Weekly
3. Monthly
4. Quarterly

7-6. Scrub and wax deck and spot-check carpet and remove stains as scheduled?

1. Daily
2. Weekly
3. Monthly
4. Quarterly

7-7. Turn mattress over and vacuum underneath?

1. Daily
2. Weekly
3. Monthly
4. Quarterly

7-8. Send draperies, curtains, chair covers and bedspreads to dry cleaning?

1. Daily
2. Weekly
3. Monthly
4. Quarterly

7-9 At what paygrade does an officer become entitled to bed-making services?

1. O-1
2. O-3
3. O-5
4. O-4

7-10 Which of the following services are personal in nature and is the responsibility of individual officers?

1. Delivery and picking up laundry
2. Replacing soil hand and bath towels
3. Sorting and storage of laundry
4. Replacing stripped linens with fresh ones

7-11. What is the maximum number of courses that may be served during a formal meal?

1. Six
2. Seven
3. Eight
4. Nine

7-12. What foodservice element distinguishes the semiformal meal style from the informal meal style?

1. The individual place settings
2. The occasion for the meal
3. The method of food preparation
4. The method of meal service

7-13. The food is attractively arranged in the pantry or galley in the proper serving dishes, then placed on the table with the proper serving utensils.

1. American
2. A la carte
3. Cafeteria
4. Family

7-14. The style of meal service that is often combined with other traditional forms of service.

1. American
2. A la carte
3. Family
4. Cafeteria

7-15. The style of meal service that is usually provided at breakfast.

1. Family
2. Cafeteria
3. A la carte
4. American

7-16. The style of meal service that can be used for both formal and informal meals.

1. American
2. Buffet
3. Cafeteria
4. A la carte

7-17. You should provide a set of standard center items for what number of diners?

1. Every eight
2. Every six
3. Every five
4. Every four

7-18. During an informal-style lunch or dinner meal, you should place the bread on the table at what specific time?

1. After all the courses have been served
2. After the main course is served
3. As soon as the diners are seated
4. 5 minutes before the meal

7-19. When, if ever, during wardroom service, can you use linen that is worn, yet clean and without stains?

1. Only at breakfast meals
2. Only when used for the buffet table
3. Only when used for the sideboard
4. Never

7-20. What term is used to describe the dishes, silver, glasses, and napkin that are placed in front of each person?

1. Space
2. Placing
3. Spread
4. Cover

7-21. You should place the silverware what number of inches from the edge of the table?

1. 1
2. 2
3. 3
4. 4

7-22. Normally. what is the maximum number of pieces of silverware that are placed at a cover?

1. Eight
2. Six
3. Five
4. Four

7-23. When used, the bread and butter plate should be placed in what location on the table?

1. To the left of the dinner plate, above the points of the forks
2. To the right plate, above the tips of the knives
3. To the upper right of the outer spoon
4. To the left of the forks or on the dinner plate

7-24. You should serve breakfast juice in what type of glass?

1. Short 7-ounce glass
2. Tall, narrow 7-ounce glass
3. Small, 6-ounce glass
4. Tall, narrow 6-ounce glass

7-25. When place cards are used, you should set them in what location the table?

1. Centered at the top of the dinner plate
2. Centered on top of the dinner plate
3. Laid flat on top of the napkin
4. Placed in front of the napkin

7-26 When setting up the beverage service for 36 diners, you should prepare what number of pots of coffee?

1. 6
2. 9
3. 3
4. 12

7-27. At what time should you have water available during a wardroom meal?

1. During formal meals when wines are being served
2. During informal meals when another beverage is being served
3. Only when coffee is not being served
4. Water should always be available

7-28. When the Commanding Officer has his or her own mess and is invited to the wardroom for a meal, what seat will he or she occupy at the table?

1. To the right of the Mess President
2. To the left of the Mess President
3. Across from the Mess President
4. He sits in the Mess President's seat

7-29. Seating arrangements for line officers with the same date of rank are determined in what manner?

1. By the mess caterer
2. By job title
3. By use of the buck
4. By lineal numbers

7-30. When officers of more than one staff corps have the same running mate, which of the following corps takes precedence over the others?

1. Supply corps
2. Chaplain Corps
3. Medical Corps
4. Civil Engineering Corps

7-31. What person normally approves the wardroom seating arrangements when several guests are to be present?

1. Commanding officer
2. Mess president
3. Mess caterer
4. Food service officer

7-32. During wardroom meal service, what specific situation will require you to serve from the right?

1. Serving wardroom meals aboard a submarine
2. Serving breakfast a la carte style
3. When it is the commanding officer's preference
4. When you are serving beverages

7-33. When you are using the cafeteria style of service, which of the following methods may be used to refill water glasses?

1. Leaving water pitchers on the table
2. Placing water pitchers on the sideboard
3. Having the diners refill their glasses from the drink dispenser
4. Having the wardroom attendant stand by to refill glasses upon request

7-34. When no guest of honor is present and more than one officer has guests, what person is served first?

1. Mess president
2. Senior host officer
3. Senior line officer present
4. Guest of the senior host officer

7-35. During a formal meal, the service plate remains in front of each diner until immediately after what course has been served?

1. Appetizer
2. Salad
3. Soup
4. Main course

7-36. At what point in a formal meal should you use a folded napkin and a tray to remove crumbs from a dining table?

1. After the main course dishes are cleared only
2. Before the salad is served only
3. Before the dessert is served only
4. Whenever any course is completed

7-37. During a formal meal, you should serve coffee at which of the following times?

1. Whenever it is requested
2. When the dessert is served
3. Both 1 and 2 above
4. Upon completion of the main course

7-38. During an informal meal, what procedure should you use to refill a diner's glass?

1. Let the diner hold the glass up for you
2. Have the diner tilt the glass toward you
3. Pick up the diner's glass and pour
4. Pour the beverage while the glass remains in place on the table

7-39. You should never fill pitchers used to serve beverages to more than what maximum level?

1. 1/2 full
2. 5/8 full
3. 2/3 full
4. 3/4 full

7-40. When you are selecting a site for a field kitchen, which of the following factors is desirable if possible?

1. Ground that is high and dry
2. A good water supply
3. Ample distance from heads
4. An access road for kitchen traffic only

7-41. When you are using water from field sources, the water is considered potable only under what condition?

1. When a bacterial analysis has been made
2. When you observe animals drinking it
3. When the sediment has been filtered out
4. When the source is either a well or a spring

7-42. When you are planning to use groundwater in a field mess operation, which of the following sources of groundwater is considered better than surface water?

1. A brook
2. A spring
3. A lake
4. A pond

7-43. A head or latrine should be located what minimum distance from the field kitchen?

1. 75 feet
2. 75 yards
3. 100 feet
4. 100 yards

7-44. The area used to bury garbage should be dug to what minimum number of feet deep?

1. 6
2. 2
3. 8
4. 4

7-45. Excess moisture should be removed from garbage when it is to be handled in which of the following manners?

1. Burned
2. Ground
3. Buried
4. Crushed

7-46 A cross-trench incinerator functions best under what condition?

1. When the ground surface of the entire trench is uniformly 12 inches deep
2. When the bottom of each trench tapers downward at their ends
3. When the trench is made to use gasoline for fuel
4. When the one end that is open faces the wind

7-47. A soakage pit should be located at least what minimum number of feet from the kitchen area?

1. 15
2. 25
3. 50
4. 75

7-48. What two pest are most important to control?

1. Flies and Rodents
2. Bugs and Mosquitoes
3. Lizards and Snakes
4. Beas and Wasps

7-49. Who is responsible for rodent control in a field mess operation?

1. Leading CS
2. Shore party commander
3. Medical officer
4. Galley watch captain

7-50. Who has the responsibility of the Afloat battle feeding plan?

1. Commanding Officer
2. Executive Officer
3. Food Service Officer
4. Damage Control Assistant

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